350/252 359/819

ORIEL

3-D BENCH SYSTEM

- INLAID METRIC SCALES ON EACH DOVETAIL
- SIMPLE BOX CONSTRUCTION
- COMPATIBLE WITH COMPLETE LINE OF ORIEL BENCH ACCESSORIES

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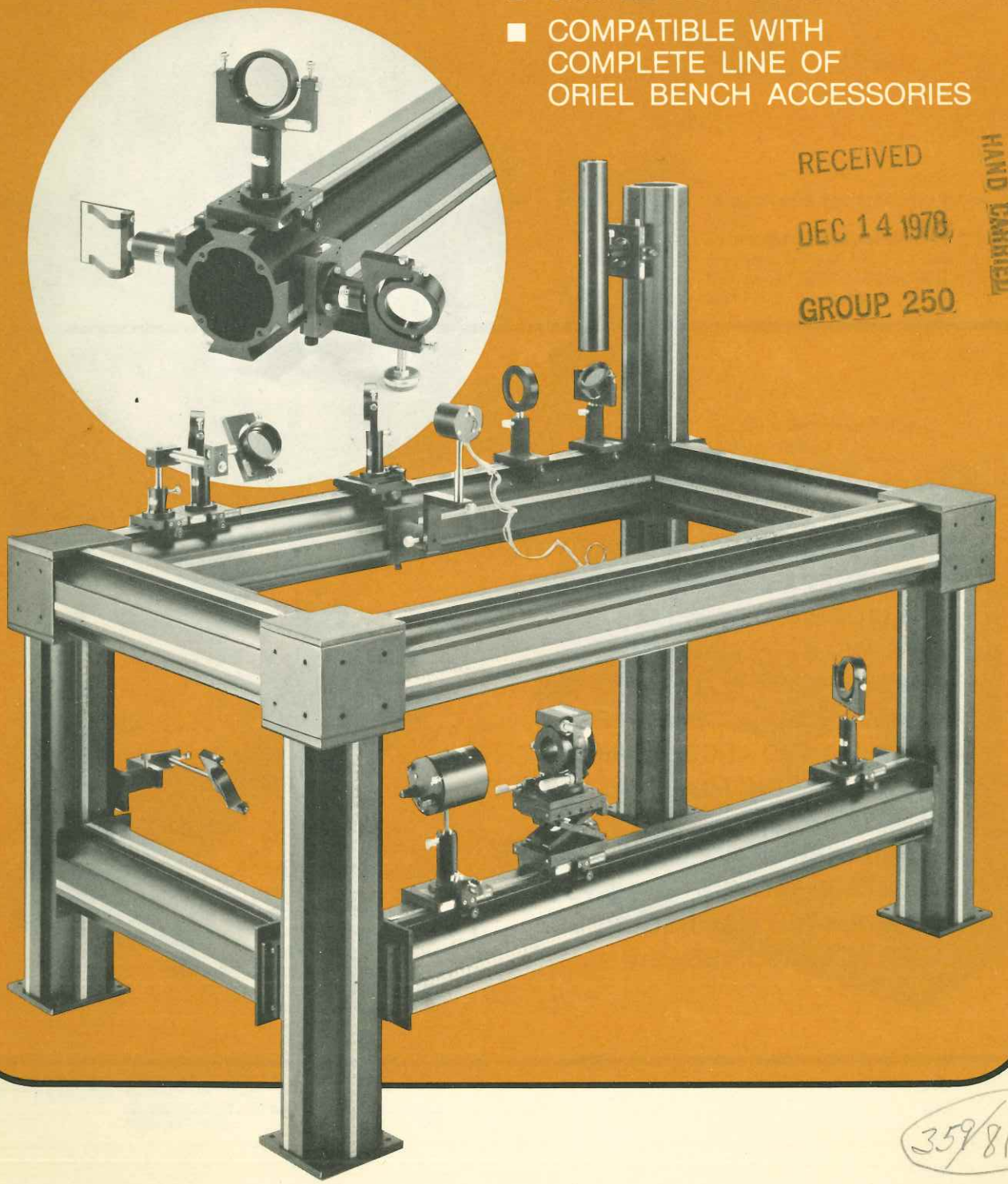

359/819

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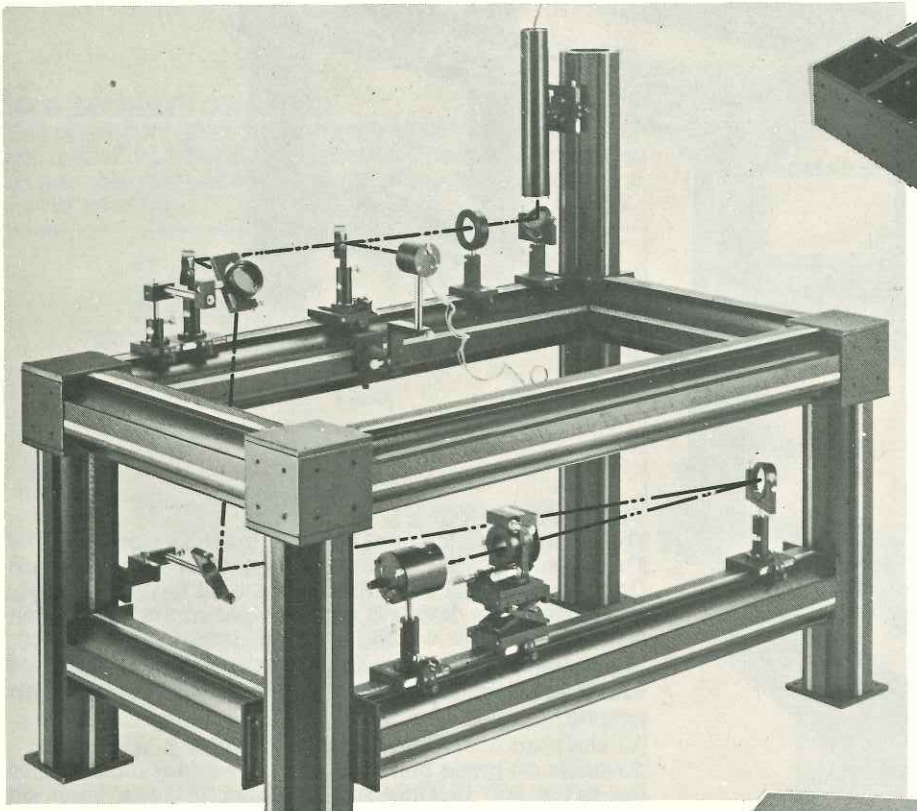
ORIEL THREE DIMENSIONAL OPTICAL BENCH SYSTEM

The Oriel THREE DIMENSIONAL OPTICAL BENCH consists of a 3½ inch (8.89 cm) diameter thick walled aluminum tubing extruded with four symmetrical dovetails. These are available in various lengths. A variety of connectors and fittings will connect these to each other to form very rigid structures in almost any configuation.

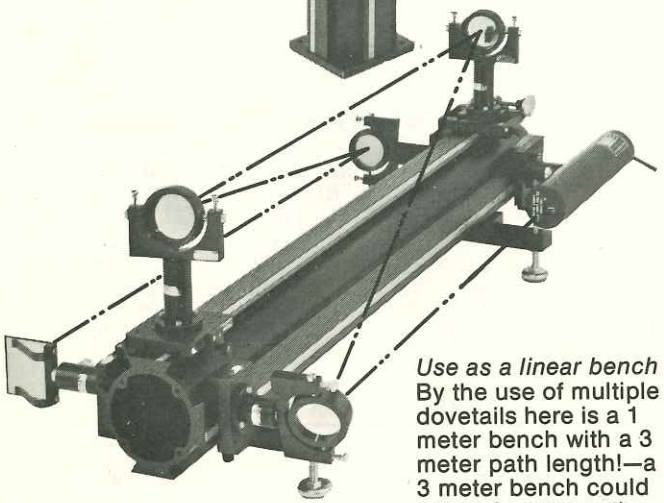
Any standard sized Oriel carrier can be mounted on any of the four dovetails. Almost any Oriel accessory can be mounted on these benches. Other instruments or lasers can be readily mounted using the flat topped Oriel carriers.

Here is a rigid table made from tubular benches mounted side by side.

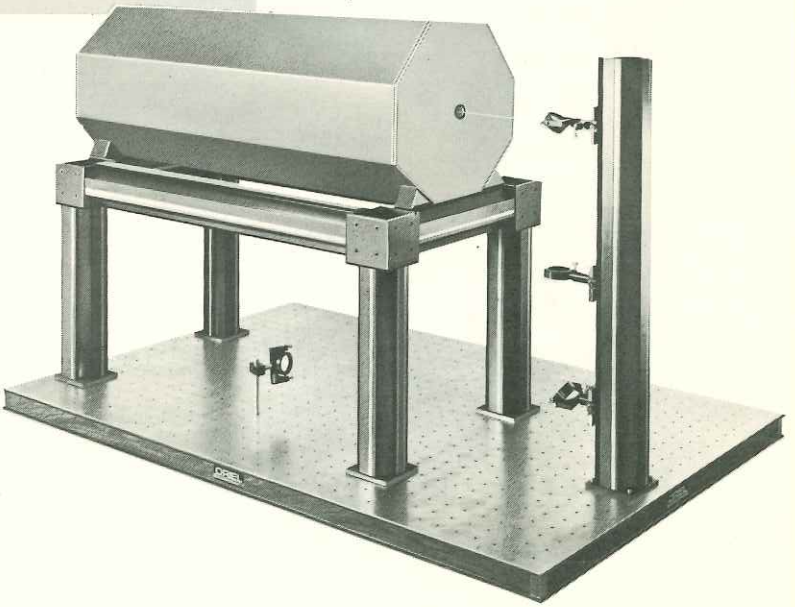


Use to build free standing structures
This rigid free standing structure shows a little of the flexibility of this as an optical mounting system.

Create a 3rd Dimension to Optical Tables
Mounting directly from tapped holes on 4 inch or 100 mm centers these rigid structures can save a great amount of table space.



Use as a linear bench
By the use of multiple dovetails here is a 1 meter bench with a 3 meter path length!—a 3 meter bench could give a 9 meter path length—(or even 12).



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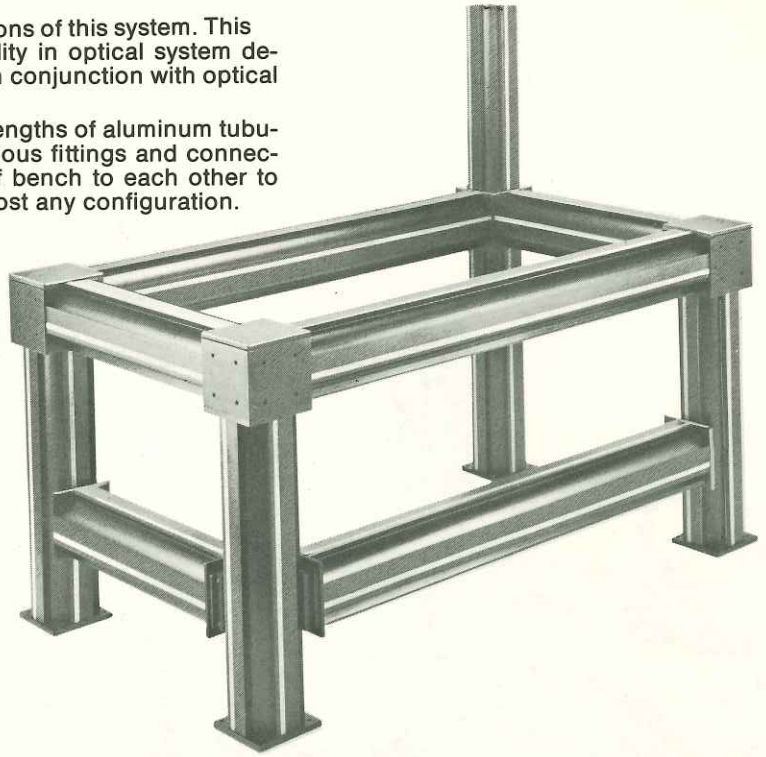
ORIEL THREE DIMENSIONAL OPTICAL BENCH SYSTEM

Turn to page 1 for more applications of this system. This system offers substantial flexibility in optical system design. It can be used by itself or in conjunction with optical tables.

The system consists of various lengths of aluminum tubular bench shown below and various fittings and connectors that will connect lengths of bench to each other to form very rigid structures in almost any configuration.



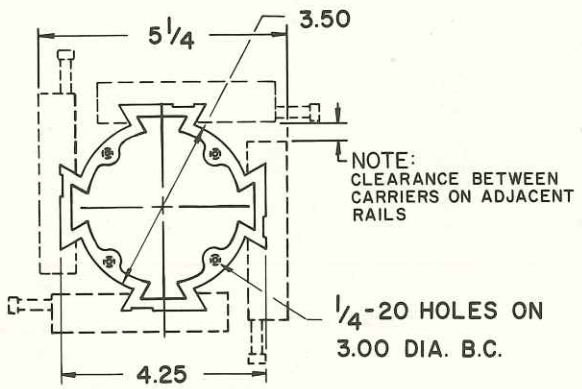
- **INLAID METRIC SCALES ON EACH DOVETAIL**
- **SIMPLE BOX CONSTRUCTION**
- **ADJACENT RAILS USABLE**
- **COMPATIBLE WITH COMPLETE LINE OF ORIEL BENCH ACCESSORIES**

TUBULAR BENCHES

These rigid tubular benches are the heart of the Oriel Three Dimensional Bench System. With four standard Oriel dovetail rails they offer substantial flexibility of system design. The dovetails are arranged so that carriers on *adjacent* dovetails will slide by one another.

These benches are extruded aluminum which has been straightened and anodized with a black non-corrosion coating.

All standard size Oriel carriers on page 6 will fit the dovetails on these benches and provide for mounting of the entire line of Oriel rod mounted or base mounted accessories



WEIGHTS

MODEL NO.	LENGTH M (FT.)	NET WEIGHT KG. (LBS.)	SHIPPING WEIGHT KG. (LBS.)
1080	0.3 (0.98)	3 (7)	4 (10)
1081	0.5 (1.64)	6 (13)	8 (16)
1082	1.0 (3.28)	11 (25)	14 (31)
1083	1.5 (4.92)	17 (37)	20 (45)
1084	2.0 (6.56)	22 (49)	26 (59)
1085	3.0 (9.84)	34 (74)	39 (86)

ORDERING INFORMATION

1080 TUBULAR BENCH—0.3 meters	**$79.00**
1081 TUBULAR BENCH—0.5 meters	**$85.00**
1082 TUBULAR BENCH—1 meter	**$148.00**
1083 TUBULAR BENCH—1.5 meters	**$185.00**
1084 TUBULAR BENCH—2 meters	**$289.00**
1085 TUBULAR BENCH—3 meters	**$375.00**

NOTE! TUBULAR BENCH—other lengths on request

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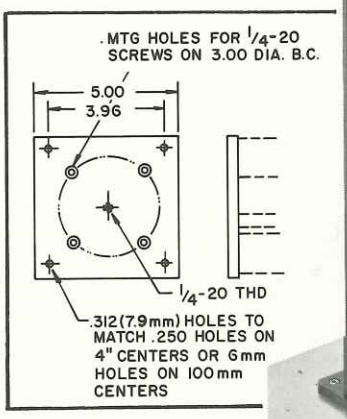
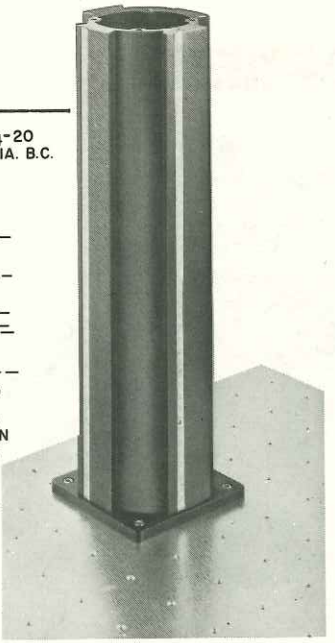
1071 END MOUNTING PLATE

These plates fasten onto the ends of the tubular benches and can be used to mount a bench upright onto an optical table with holes on 2 inch or 50 mm centers or to mount two benches together in line. **PRICE $34.00**

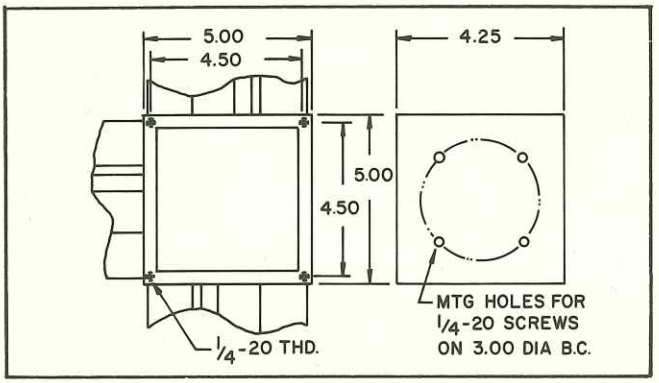

.MTG HOLES FOR 1/4-20 SCREWS ON 3.00 DIA. B.C.
5.00
3.96
1/4-20 THD
.312(7.9mm) HOLES TO MATCH .250 HOLES ON 4" CENTERS OR 6mm HOLES ON 100mm CENTERS

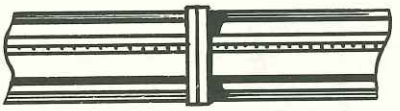


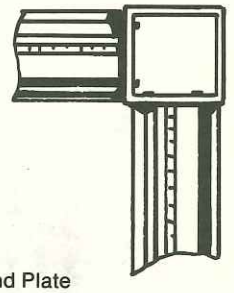
1071
End Mounting Plate

1070 CONNECTOR BLOCK

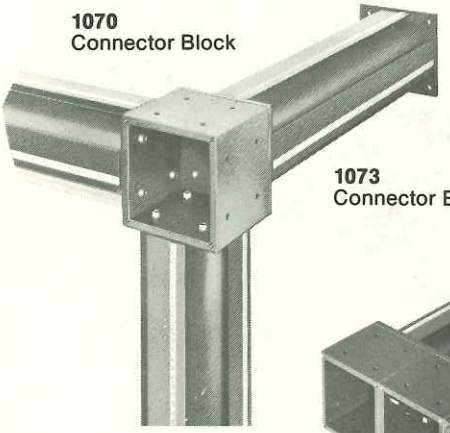
This can mount up to 4 bench ends at 90° from each other and can accept 1 or 2 benches with Connector Endplates on the open ends of the block. Its primary use is to form a corner as shown. **PRICE $37.00**







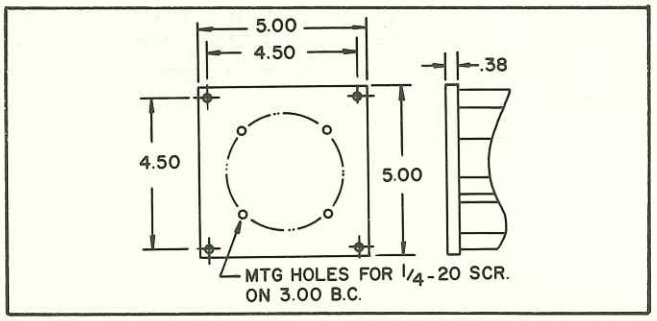
1070
Connector Block

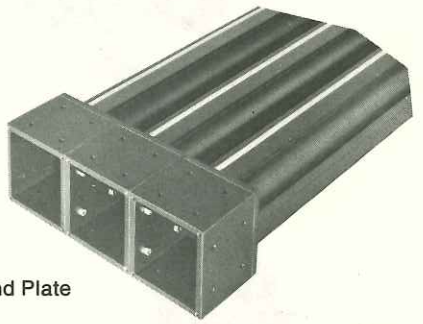


1073
Connector End Plate

1073 CONNECTOR END PLATE

This, with the Connector Block allows mounting 3 to 6 benches together to form a corner. **PRICE $ 34.00**



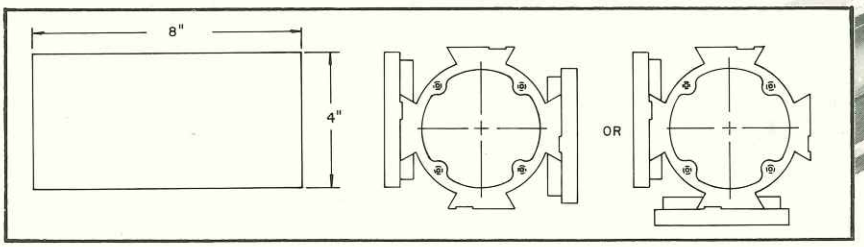


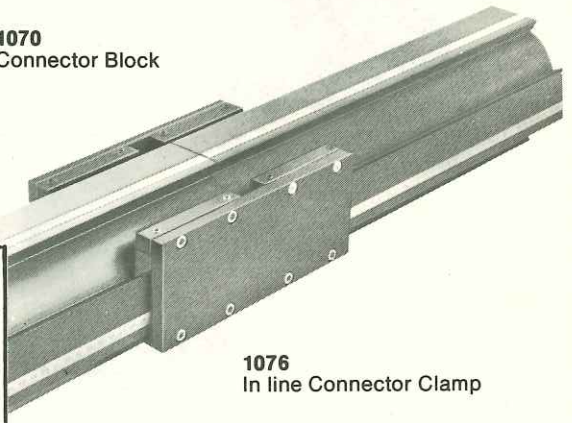
1073
Connector End Plate

1070
Connector Block

1076 IN-LINE CONNECTOR CLAMPING PLATE

To connect tubular benches in line use two of these connector plates which clamp onto the dovetails. These can be mounted on two adjacent or two opposite sides. These leave the other two dovetails unobstructed.
PRICE $98.00





1076
In line Connector Clamp

Dimensions in inches (mm)

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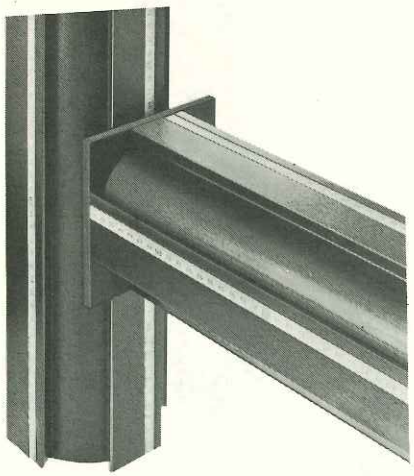
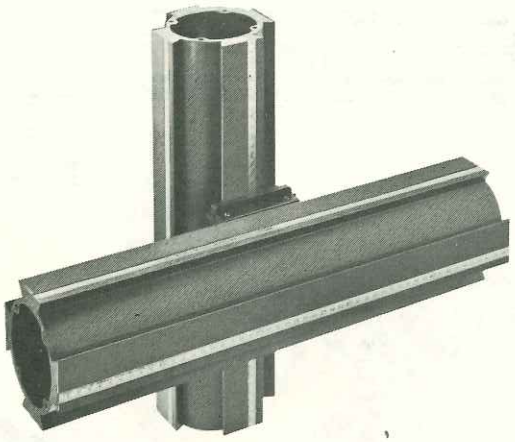


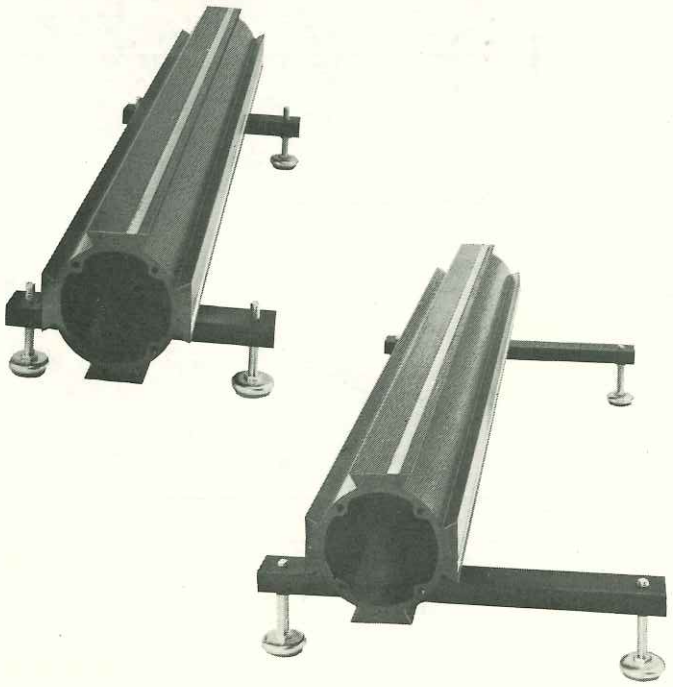
1074 90° SLIDING CONNECTOR

This connector is actually a special version of a clamping carrier. It mounts onto the end of one bench and clamps onto the dovetail of another bench. **PRICE $78.00**



1075 OFFSET CROSS SLIDING CONNECTOR

This clamps two benches at 90° offset so that the position of both benches is adjustable. The design of both clamps is similar to the clamping carrier. **PRICE $168.00**



1072 MOUNTING FEET ASSEMBLY

This consists of two adjustable feet on a crossbar with provision to clamp onto the bottom dovetail rail. The feet are each spaced 4 inches (10.2 cm) away from the center of the bench. Order two assemblies to support the bench. **PRICE $18.00**

1079 OFFSET MOUNTING FEET ASSEMBLY

Similar to the assembly above with one foot is spaced 8 inches (20.3 cm) from the center of the bench while the other remains at 4 inches (10.2 cm). This is to support heavy side loads to the bench especially when one side rail is loaded. Includes feet. Order two assemblies to support the bench. **PRICE $21.00**

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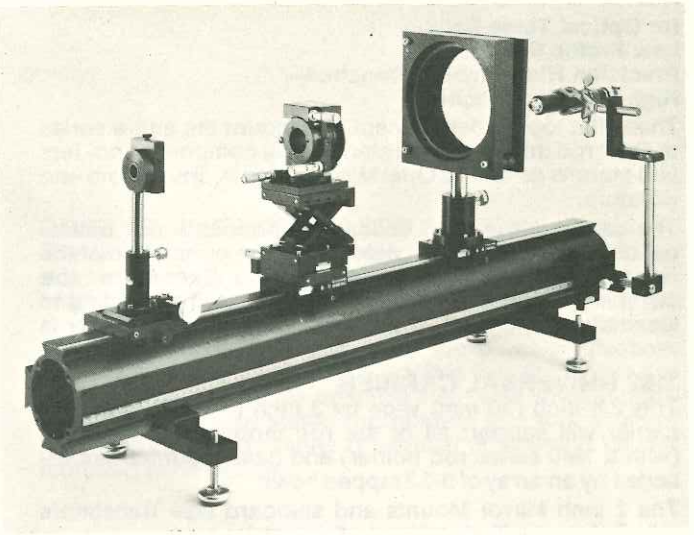
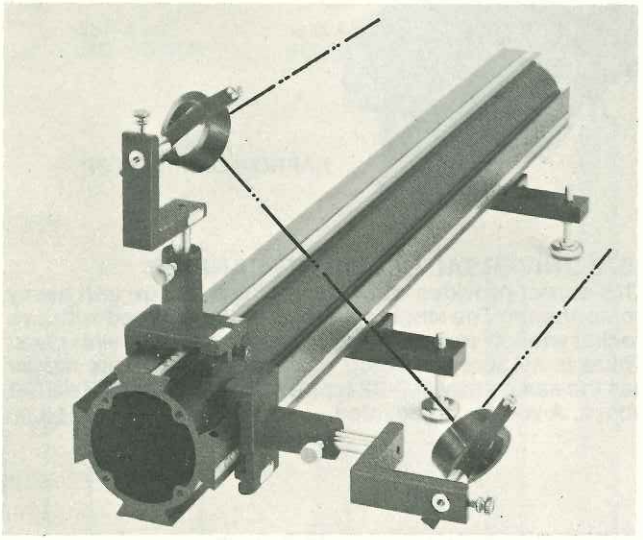
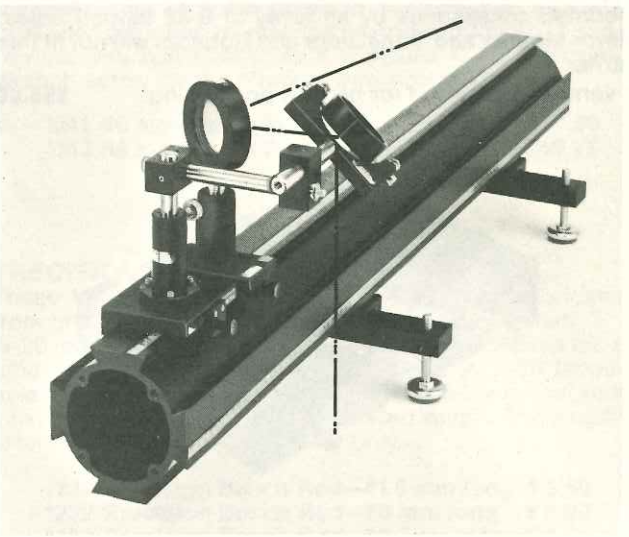
ORIEL OPTICAL COMPONENT MOUNTING
on Tubular Benches

With the carriers shown on page 6 any of the following can be mounted to any of the rails of these tubular benches.

- Rod Holders—standard
- Rod Holders—large
- Rod Mounted Accessories
- Base Mounted Accessories
- Laser Beam Accessories
- Translators, Rotators
- Vertical Translators and Jacks
- Precision Mirror Mounts
- 75-100 Watt Lamp Housings
- Lasers







To transfer beam from one rail to an adjacent rail use

2 each required
1263 Tilting Mirror ..... (p.20)
or
1262 Tilting Mirror Holder ..... (p.20)
with 2 inch Mirror (Section I)
1201 Horizontal Rod Holder $22.00
1232 or 1233 Rod ..... (p.7)
1268 Rod Mount Carrier ..... (p.6)

To transfer beam over the edge and down:

1273 Optic Mount ..... (p.13)
with Mirror
1168 Rod Mounted Carrier ..... (p.6)
1428 90° Rod Connector $14.00
1233 Rod ..... (p.7)
1243 Rod Holder ..... (p.7)
1162 Carrier ..... (p.6)
1263 Tilting Mirror Holder ..... (p.20)
with Mirror
1233 Rod ..... (p.7)
1428 Rod Connector $14.00

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ORIEL OPTICAL BENCH AND RAIL CARRIERS Standard Size

for Optical Table Rails—
Low Profile Benches—
Precision High Stability Benches—
High Stability Benches—

These flat top carriers accept and mount the entire series of Oriel rod and base mounted optical component holders and mounts as well as Oriel Mirror Mounts, Translators and Rotators.

The carrier is the most critical component in any optical bench system because it determines the orientation of the optical component mounted theron. Except for the clamping carrier Oriel carriers are designed according to kinematic principles. The horizontal reference plane is determined by three top points and the optical axis in that plane is determined by two side points which contact the dovetail rail. A unique, spring-loaded screw on the other side of the carrier provides a spring-loaded force holding the five points described above to the rail. This screw has three positions. When locked the carrier is held firmly to the rail. When partially loosened a spring-loaded force is applied by the screw to keep the carrier positioned against the five contact points. When completely loosened the carrier lifts vertically off the rail. ***Because of this spring-loaded design carriers can be locked and unlocked with negligible change in orientation.***

1162 UNIVERSAL CARRIER

This 3½ inch (90 mm) wide by 3 inch (76 mm) universal carrier will support all of the rod mounted accessories (with a 1240 series rod holder) and base mounted accessories by an array of 6-32 tapped holes.

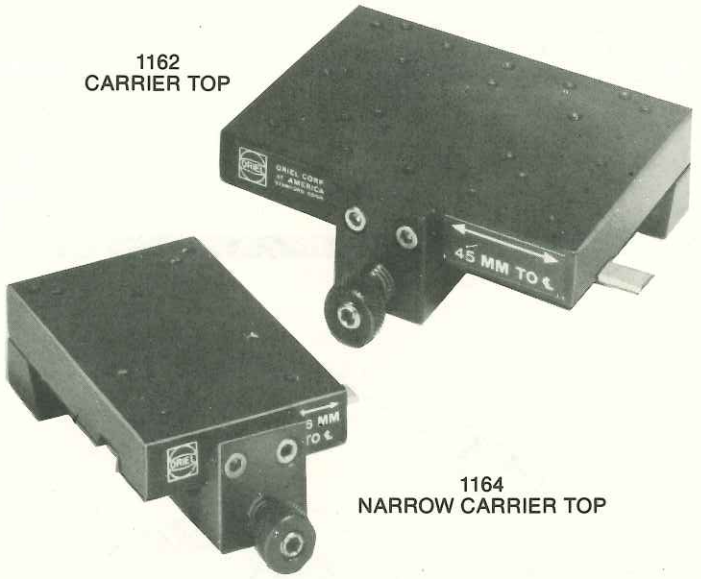
The 2 inch Mirror Mounts and standard size Translators and Rotators will also fit onto this carrier.

A vernier is provided for precise positioning. **$59.50**

1164 UNIVERSAL NARROW CARRIER

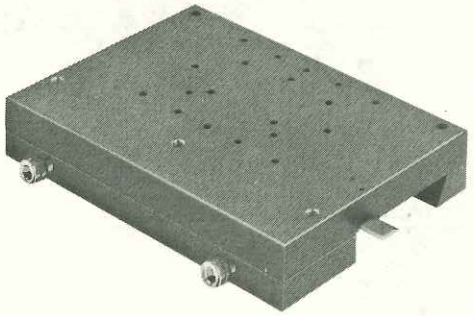
This 2 inch (51 mm) wide by 3 inches (76 mm) deep universal carrier will support all of the rod mounted accessories (with a 1240 series rod holder) and most base mounted accessories by an array of 6-32 tapped holes. Mirror Mounts and Translators and Rotators will not fit this carrier.

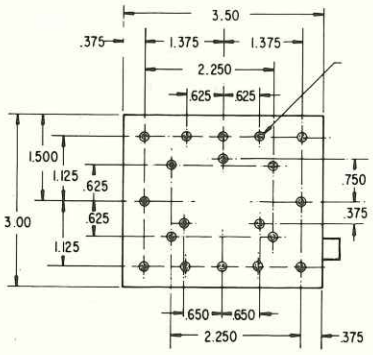
A vernier is provided for precise positioning. **$55.00**



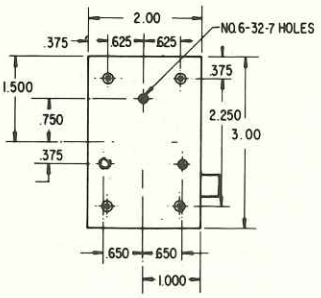
1162
CARRIER TOP

1164
NARROW CARRIER TOP





CARRIER TOP



NARROW CARRIER TOP

1078 UNIVERSAL CLAMPING CARRIER

This carrier provides stable clamping for large and heavy components. The single thumbscrew is replaced with two socket wrench screws clamping against the rail with pads. There is no spring loading of these clamps. This carrier has the same array of 6-32 tapped holes as the 1162 carrier above. A vernier is provided. **$129.00**

1168 ROD MOUNT CARRIER—with vernier

This case carrier will mount all Oriel rod mounted accessories directly. The rods are stably held against two wide by spaced line contacts.

A vernier is provided for precise positioning. **$42.00**

1167 ROD MOUNT CARRIER—without vernier

This is identical to the 1168 except that no vernier is provided. **$38.00**

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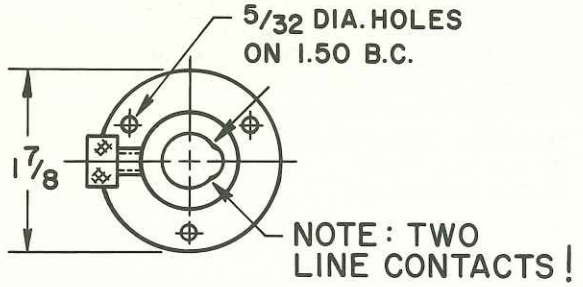
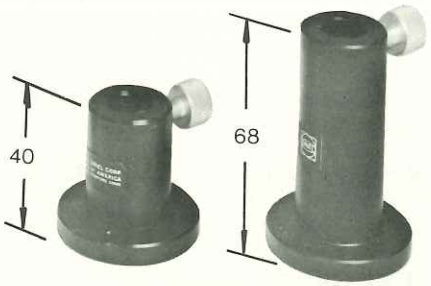
ORIEL RODS AND ROD HOLDERS Standard Size
with 14.3mm diameter rods





1241 40 mm ROD HOLDER

1243 68 mm ROD HOLDER

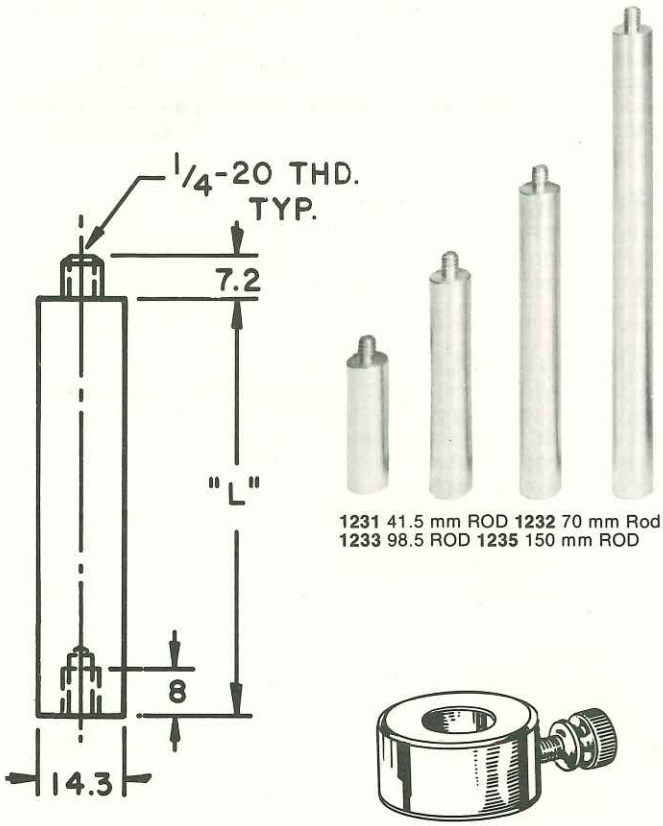
ORIEL STABLE ROD HOLDER SYSTEM

The wobbly rod problem is cured at last! Each Oriel Rod Holder has been precision bored twice so that the *rod is held against two widely spaced line contacts.* With the thumbscrew only moderately tight, the rod mounted accessory is locked in place. With the older single bore designs where the rod is held against just the single line the rod is normally quite unstable even with wrench tightening. Two sizes of stable rod holders and four sizes of rods provide a wide range of vertical positioning for rod mounted accessories.

STABLE ROD HOLDERS

Two sizes of stable rod holders are available for mounting accessories at different heights. Both are precision bored twice *to provide two widely spaced line contacts.* Any rod diameter from 14.3 mm down to 11.5 mm can be stably held. For permanent ultra stable rod mounting of large devices you can substitute a standard ¼-20 allen head wrench screw for the thumb screw provided.

1241 40 mm Stable Rod Holder $17.00
1243 68 mm Stable Rod Holder $19.75



1231 41.5 mm ROD **1232** 70 mm Rod
1233 98.5 ROD **1235** 150 mm ROD

PRECISION BENCH RODS

These 14.3 mm diameter (9/16 inch) rods are fabricated from precision ground, non-magnetic stainless steel. The ¼-20 male thread fits all Oriel accessories as well as many other optical and photographic devices. A *¼-20 tapped hole in the bottom* on the rod adds flexibility in that rods can be screwed together for increased length. The lengths listed below are to the shoulder only.

1231 Precision Bench Rod—41.5 mm long $ 5.50
1232 Precision Bench Rod—70 mm long .. $ 6.00
1233 Precision Bench Rod—98.5 mm long $ 6.85
1235 Precision Bench Rod—150 mm long $ 7.70

1251 ROD COLLAR

1251 ROD COLLAR

This 0.50 inch (13 mm) high ring fits around the rod and is clamped to the rod at any height by a thumbscrew. This very useful device allows rotation about the vertical axis of a rod mounted component after the height has been fixed prior to final clamping. **$5.50**

Dimensions in inches (mm)

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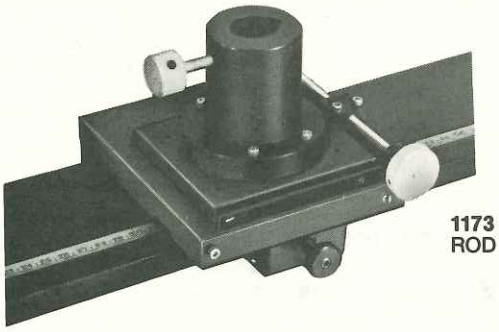
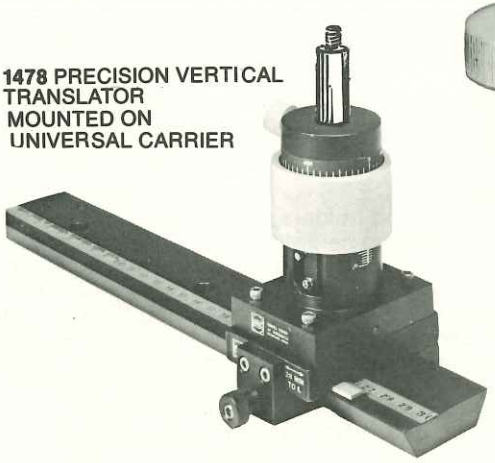
ORIEL TRANSLATORS AND ROTATORS Standard Size

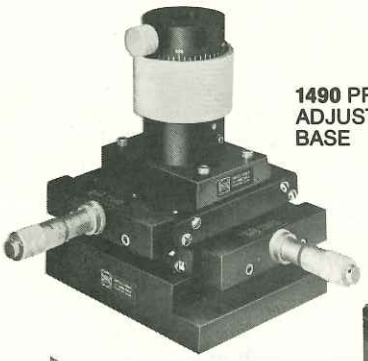


1173 VERTICAL FEED ROD

1176 CROSS FEED CARRIER WITH 1243 68 MM ROD HOLDER

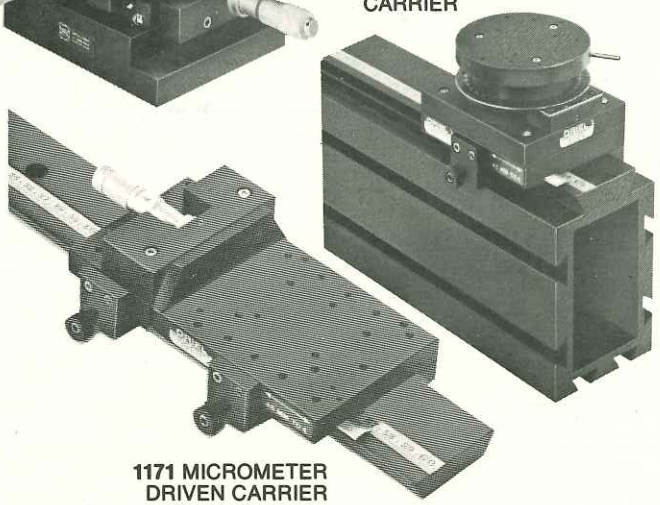
1478 PRECISION VERTICAL TRANSLATOR MOUNTED ON UNIVERSAL CARRIER





1490 PRECISION X-Y-Z ADJUST ON 1183 TABLE BASE

1177 ROTARY TABLE ON CARRIER



1171 MICROMETER DRIVEN CARRIER (SHOWN WITH 1241 ROD HOLDER)

1176 CROSS FEED CARRIER—Standard

This carrier accepts either a 40 or 68 mm high rod holder and provides 20 mm (± 10 mm) travel in the direction perpendicular to the optical axis driven by a 20 thread per inch thumb screw.

Order Rod Holder Separately . . . . .PRICE $165.00
1241 40 mm Rod Holder . . . . . .PRICE $ 17.00
1243 68 mm Rod Holder . . . . . .PRICE $ 19.75

VERTICAL FEED RODS

This extremely useful device mounts any Oriel accessory onto any standard rod holder in place of the normal rod and allows a vertical translation driven by a thumbnut with a 20 thread per inch thread. The end of the thumbscrew of the rod holder fits into the groove in the threaded rod to prevent rotation. Tightening this screw locks the accessory in place.

These feed rods in conjunction with the Cross Feed Carrier make a remarkably effective X-Y bench translator.

1173 Vertical Feed Rod—70 mm long **$42.00**
1174 Vertical Feed Rod—98.5 mm long **$44.00**

1478 PRECISION VERTICAL TRANSLATOR

This translator allows precision vertical adjustment of any rod mounted component. Coarse adjustment is obtained by manually positioning the rod. Fine adjustment through a 10 mm travel is achieved by a large diameter very fine thread adjusting nut with a vertical resolution of ¼ micron. A scale calibrated in 10 micron units allows setability to 1 micron (from a single direction). This translator will mount any standard or large Universal Carrier Table Base or standard Translators. **PRICE $198.00**

1490 PRECISION X-Y-Z ADJUST

This is a 1478 Precision Vertical Translator mounted on two 1482 Precision Translation stages to provide X-Y-Z adjustment of any rod mounted accessory. **PRICE $585.00**

1177 ROTARY TABLE

This table allows 360° rotation about the vertical axis driven by a lever arm. The positioning is smooth and precise. A 360° scale is provided with graduations every 2 degrees. A vernier allows readout to the nearest 0.2°. The position is held by friction.

This will mount onto any standard or large size carrier or table base. It can also be mounted onto standard size translators or vertical translators. On top can be mounted standard or large rod holders or standard base mounted accessories. **PRICE $156.00**

1171 MICROMETER DRIVEN CARRIER

This spring loaded micrometer drive will precisely position a standard universal carrier along the optical axis. This Universal Carrier is identical to the 1162 carrier. The small divisions on the metric micrometer are spaced 0.01 mm apart. Total travel is 12.7 mm.

Any rod holder or base mounted accessory can be mounted on this carrier. **PRICE $208.00**

ORIEL CORPORATION
15 MARKET ST., STAMFORD, CONN. 06902
(203) 357-1600 TWX 710-474-3563

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ORIEL TRANSLATORS AND ROTATORS Standard Size

1620 PRECISION TRANSLATOR

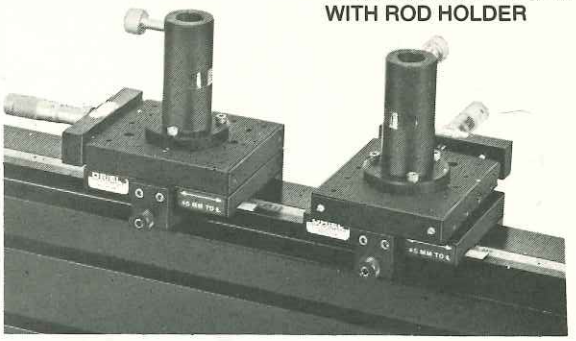
These produce stable straightline motion with no wobble or play riding on pre-stressed ball bearings. The range is 12.7 mm with graduations every 0.01 mm and a resolution of 0.25 μm

This low profile (14 mm thick) Translator can be mounted onto 1162 Carriers (p.6) or 1181 or 1215 Table Bases in the cross or longitudinal direction.

The top has the same array of mounting holes as the 1162 Carrier and will accept Rod Holders (p.7) and many base mounted accessories.

PRICE $195.00

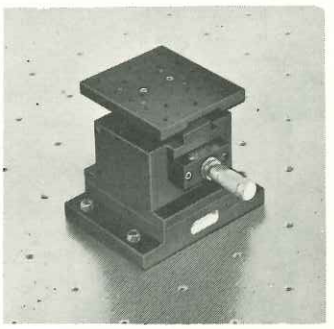
1620
TRANSLATORS ON CARRIERS
WITH ROD HOLDER



1632 PRECISION VERTICAL TRANSLATOR

This stable flat bed vertical translator provides straight line motion mounted in pre-stressed ball bearing ways. The range is 12.7 mm with graduations every 0.01 mm and a resolution of 0.25 μm. This will mount onto an 1162 Carrier (p.6) or 1181 or 1215 Table Base The top is similar to the 1162 Carrier and will accept Rod Holders (p.7) and many base mounted accessories.

PRICE $445.00

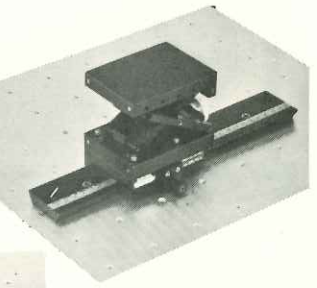


1632
VERTICAL TRANSLATOR
ON TABLE BASE

1727 PRECISION VERTICAL JACK

This offers a wide range of travel with a stable platform and smooth screw adjustment with a 2.5 μm resolution. The stability comes from the use of pre-stressed ball bearing slides and from mounting the adjustment knob to the base. The jack mounts to the 1162 Carrier (p.6)16) Table Base has a hole pattern on the top that is similar to the 1162 Carrier. Height is adjustable from 57 to 102 mm.

PRICE $ 375.00

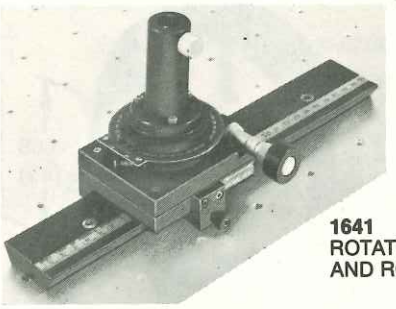


1727
VERTICAL JACK
ON CARRIER

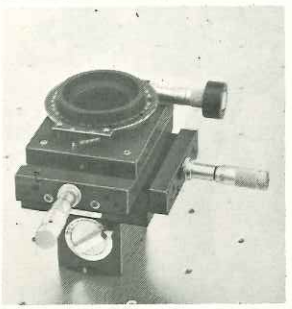
1641 PRECISION ROTATOR

This produces stable accurate rotary motion riding on pre-stressed ball bearings. A 1° scale with vernier allows reading to 0.1°. 360° coarse adjust is possible by loosening a set screw. The micrometer drives over a 16° range, has graduations approximately every arc minute (with calibration chart) and has a resolution of 1.5 arc sec. This mounts onto a 1162 Carrier (p.6)

1181 or 1215 Table Base. **PRICE $258.00**
1658 ROD HOLDER ADAPTER FOR 1641 **PRICE $ 28.00**
1652 BASE MOUNT ADAPTER FOR 1641 **PRICE $ 41.00**



1641
ROTATOR WITH 1658 ADAPTER
AND ROD HOLDER ON CARRIER



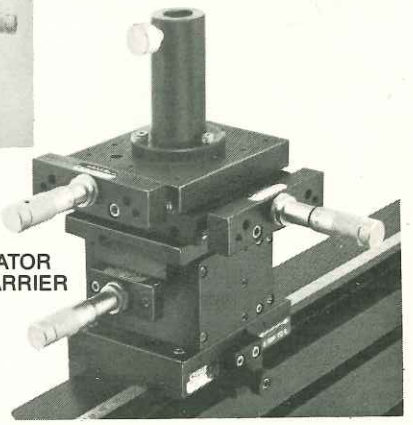
1641
ROTATOR ON (2) 1620 TRANSLATORS
ON MAGNETIC BASE FOR
X-Y-Θ-MOTION

COARSE/FINE DRIVES

The translators vertical translators and rotators listed above have straight micrometer drives. They are also available with coarse/fine adjustments with extremely fine resolutions.

COMBINATION MOTIONS

These translators, vertical translators and rotators can be mounted onto each other in a variety of ways to provide translation and/or rotation about any of all three axes.



(2)
1620 TRANSLATORS AND
A 1632 VERTICAL TRANSLATOR
WITH ROD HOLDER ON CARRIER
FOR X-Y-Z TRANSLATION

ORIEL CORPORATION
15 MARKET ST., STAMFORD, CONN. 06902
(203) 357-1600 TWX 710-474-3563

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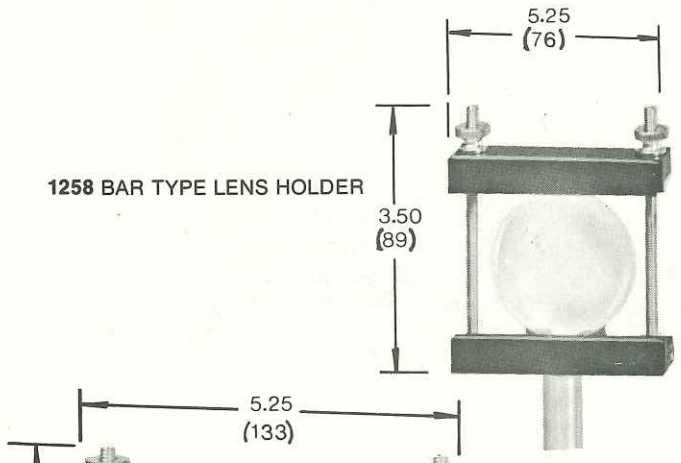
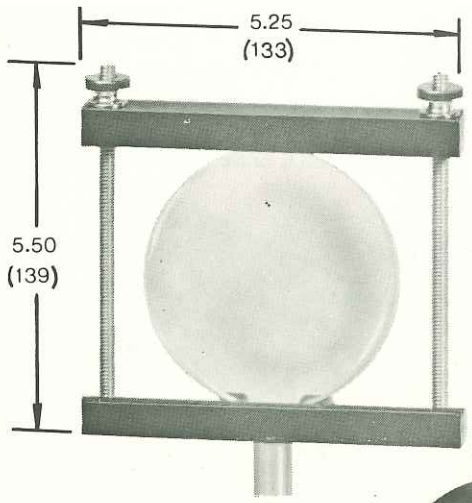
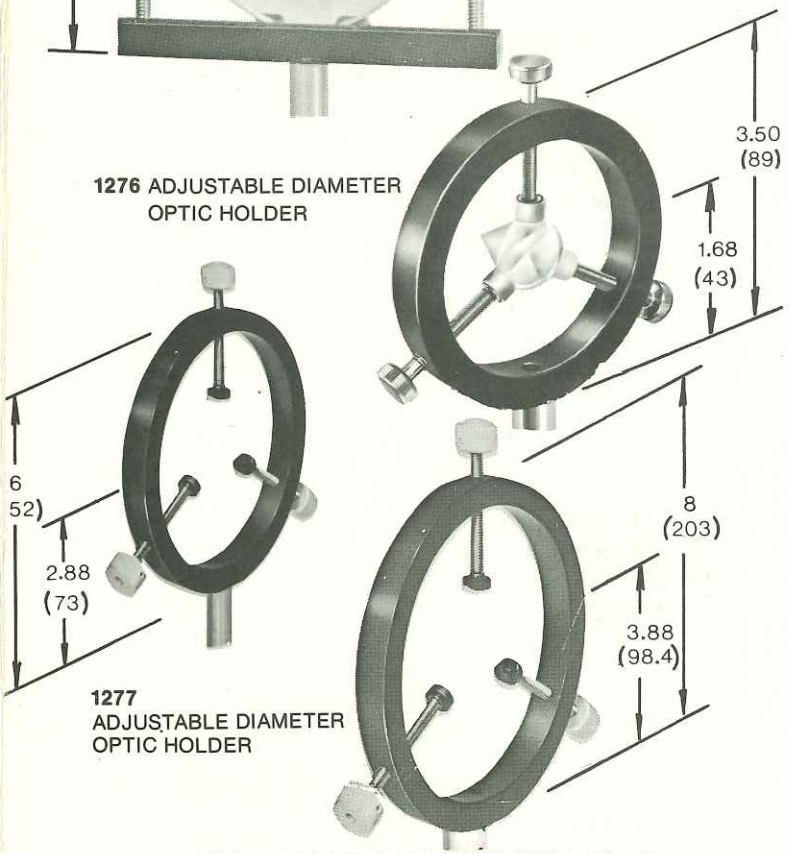
ORIEL ROD MOUNTED ACCESSORIES



1258 BAR TYPE LENS HOLDER



1259 BAR TYPE LENS HOLDER



1276 ADJUSTABLE DIAMETER OPTIC HOLDER

1277 ADJUSTABLE DIAMETER OPTIC HOLDER

1278 ADJUSTABLE DIAMETER OPTIC HOLDER
6 inch with Large Rod

Dimensions in inches (mm)

1258 BAR TYPE LENS HOLDER-2¼ inch

Here is a new type of bar lens holder that holds both thin and thick edged components—large and small with almost no reduction in usable aperture. Far superior to the old cast deep vee types. The optic rests on two hard elastomer pads forming a shallow "vee". It is firmly held down by a third pad on the top bar. Optics from ½ inch (12 mm) to 2¼ inch (57 mm) can be held. **$38.00**

1259 BAR TYPE LENS HOLDER—4 inch

This is similar to the 1258 above for lenses from 1 inch (25 mm) to 4 inch (102 mm) diameter. **$43.00**

1260 BAR TYPE LENS HOLDER—6 inch

—Not shown

This is similar to the 1258 above for lenses from 1.5 inch (38 mm) to 6 inch (152 mm) diameter. The rod is not included. ORDER ROD SEPARATELY FROM PAGE 7.

$56.00

1276 ADJUSTABLE DIAMETER OPTIC HOLDER—2¼ inch

Three V-grooved Delrin clamps mounted on thumbscrews will firmly hold optical components from ½ inch (12.7 mm) up to 2¼ inches (57 mm) diameter. The rotatable shallow V-grooves allow for mounting thick components (with the V-grooves parallel to the optical axis) or thick edge components with the V-groove parallel to the edge. Even with small diameter, thin edge optics the aperture is left almost completely clear. Some positioning in a plane perpendicular to the optical axis is possible with this holder.

$54.00

1277 ADJUSTABLE DIAMETER OPTIC HOLDER—4 inch

Similar to the 1276 above. This will hold optics from ¾ inch (19 mm) to 4 inches (102 mm) diameter. **$103.00**

1278 ADJUSTABLE DIAMETER OPTIC HOLDER—6 inch

Similar to the 1276 above this will hold optics from 3 inch (75 mm) diameter to 6 inches (153 mm) diameter. Height of optical axis above rod shoulder is 3.95 in. (100 mm). The rod is not included. ORDER ROD SEPARATELY FROM PAGE 7. 7 (Standard) or A-23 (Large). **$152.00**

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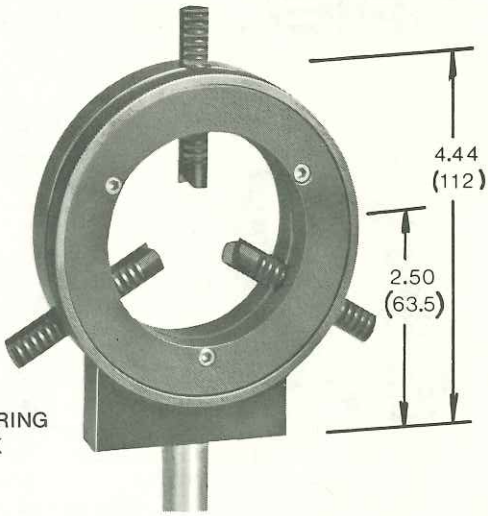
ORIEL

1288 SELF CENTERING LENS CHUCK

- Precision Stable Lens Holding
- Lenses centered regardless of diameter
- Quick Interchange for repetitive lens testing

This provides precise centering of a lens regardless of diameter from ½ inch (12.7 mm) to 2 inch (51 mm).
The lens can be quickly installed by loosening a single outer knurled ring. When this is retightened the lens is held snugly in the center without the wobble or play common in most quick interchange lens holders. **$208.00**

NOTE: *This is also available in a base mounted version (See page A-62)*



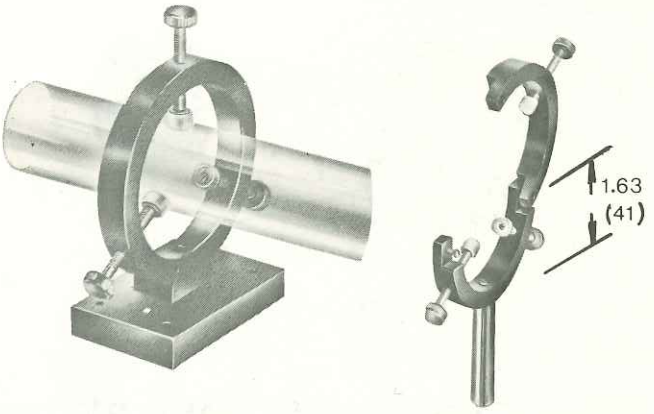
1288 SELF CENTERING LENS CHUCK

1291 ADJUSTABLE DIAMETER TUBE HOLDER

This is a more flexible version of the 1276 Adjustable Diameter Optic Holder on the previous page. The ring is split into two half sections which are hinged and bolted together so that the top section can be pivoted open to install a tube from the top. Three thumb screws with delrin cushioned clamps position the tube.

These mounts can accomodate either optical components or tubes from ½ inch (12.7 mm) to 2¼ inch (57 mm) diameter. Generally a tube will require two of these holders. **$89.00**

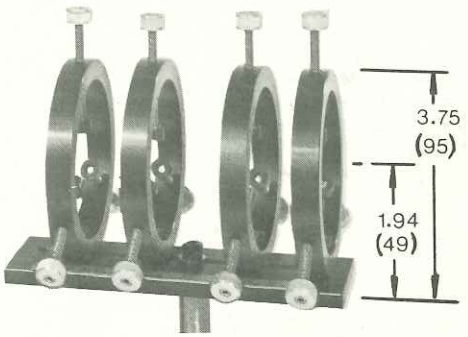
NOTE: *This is also available in base mounted form (See page A-62).*



1291 ADJUSTABLE DIAMETER TUBE HOLDER

1207 MULTIPLE LENS MOUNT—2¼ inch

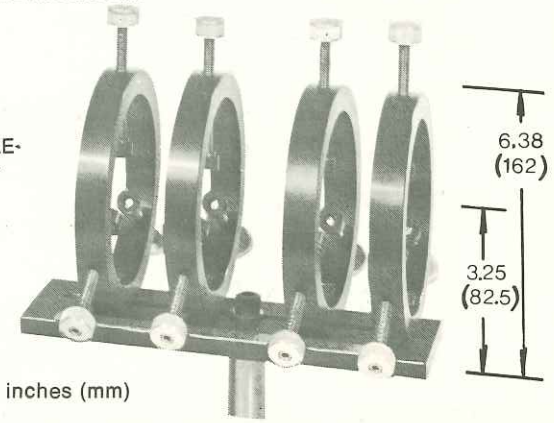
This is extremely useful for mounting compound lenses or other optics which must be mounted in close proximity then focussed as a unit.
Four 1276 Adjustable Optic Holders (½ to 2¼ inch or 12 to 57 mm diameter) are held to a 1203 Multiple Accessory Plate with ¼-20 screws. Their positions can be adjusted on the plate and the whole assembly moved in unison. The maximum distance from the first to the last holder is 5¾ inch (147 mm).
Additional 1276 Adjustable Optic Holders can be added by removing their rods and substituting ¼-20 screws.
$205.00



1207 MULTIPLE LENS MOUNT 2¼ inch.

1208 MULTIPLE LENS MOUNT—4 inch

Similar in function to the 1207 above this consists of four 1277 Adjustable Diameter Lens Holders mounted on a heavier 1211 Multiple Accessory Mounting Plate. The maximum distance from the first to last holder is 9¾ inches (248 mm). **$380.00**



1208 MULTIPLE-LENS MOUNT 4 inch.

Dimensions in inches (mm)

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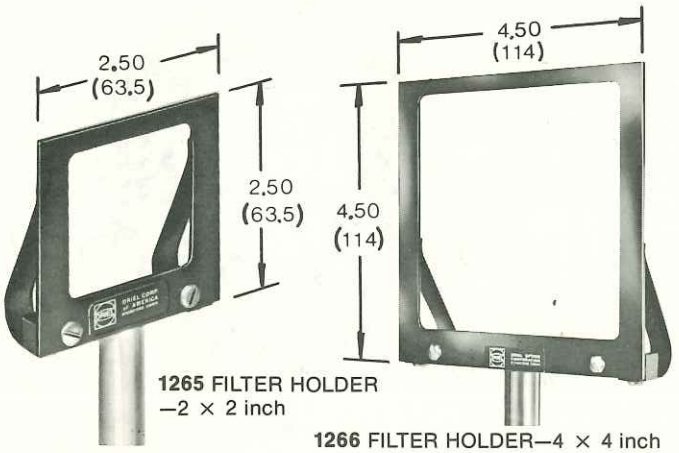
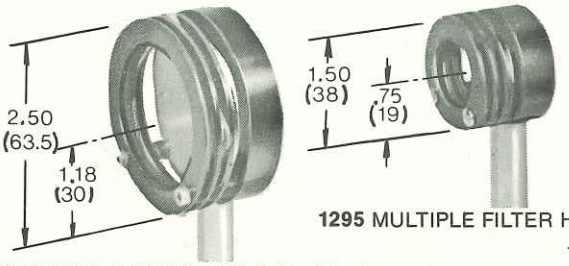
ORIEL ROD MOUNTED ACCESSORIES



1265 FILTER HOLDER —2 × 2 inch

1266 FILTER HOLDER—4 × 4 inch

Dimensions in inches (mm)



1295 MULTIPLE FILTER HOLDER —1 inch

1294 MULTIPLE FILTER HOLDER—2 inch

1265 FILTER HOLDER—2 × 2 inch

This will accept 2 × 2 inch (50 × 50 mm) or larger filters, screens, gratings and other flat pieces up to a ⅜ inch thickness. Two spring clamps hold the filter against the aperture which is 1.5 × 1.5 inches (38 × 38 mm). **$ 43.00**

1266 FILTER HOLDER—4 × 4 inch

Similar to 1265 above this will accept 4 × 4 (100 × 100 mm) or larger filters up to ½ inch (13 mm) thick and has an aperture of 3.68 × 3.68 inches (93 × 93 mm).

$64.00

1279 FILTER HOLDER—6 × 6 inch NOT SHOWN

Similar to the 1265 above this will accept 6 × 6 inch (150 × 150 mm) or larger filters or screens up to ½ inch (13 mm) thick. The aperture is 5.68 × 5.68 inch (144 × 144 mm) centered 3⅜ inch (86 mm) above the rod shoulder. The rod is not included. ORDER ROD SEPARATELY FROM PAGE 7.

$88.00

1294 MULTIPLE FILTER HOLDER—2 inch

This has up to 3 slots to hold 2 inch (50 mm) diameter or square filters. A series of dividers and ⅛ inch (3.2 mm) spacers allows the selection of the number and thickness of slots up to a total thickness of ½ inch. **$55.00**

1295 MULTIPLE FILTER HOLDER—1 inch

This is similar to the 1294 above for 1 inch (25 mm) filter.

$ 51.50

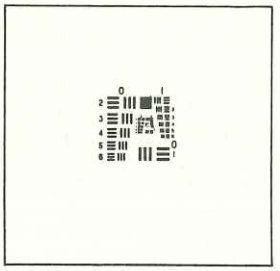
RESOLUTION TARGETS AND PATTERNS

RESOLUTION TARGET — (USAF 1951) — 1 to 228 lines per mm

This is the most commonly used resolution target. Each target element consists of two orthogonal sets of three parallel lines whose line width equals the spacing between the lines. Each group consists of six elements labelled 1 through 6. 8 groups labelled 0 through 7 are provided.

The table below shows the number of lines per millimeter available. Each step is separated by a factor of $2^{1/6}$ or 1.1225.

This target is fabricated in vacuum deposited chrome on a 2 x 2 inch x 0.060 inch (51 x 51 x 1.5 mm) glass substrate. The chrome has excellent durability allows high contrast and high power levels without damage. The optical density is greater than 2.0 (less than 1% Transmission).



LINE PAIRS PER MM

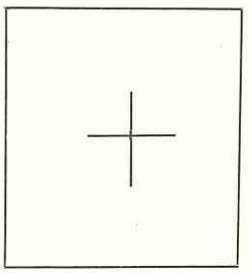
Element No.	GROUP NUMBER 0	1	2	3	4	5	6	7
1	1.00	2.00	4.00	8.00	16.0	32.0	64.0	128.
2	1.12	2.24	4.49	8.98	17.95	36.0	71.8	144.
3	1.26	2.52	5.04	10.1	20.16	40.3	80.6	161.
4	1.41	2.83	5.66	11.3	22.62	45.3	90.5	181.
5	1.59	3.17	6.35	12.7	25.39	50.8	102.	203.
6	1.78	3.56	7.13	14.3	28.51	57.0	114.	228.

1378 RESOLUTION TARGET — USAF 1951 **$104.00**
Positive (light field)

1379 RESOLUTION TARGET — USAF 1951 **$104.00**
Negative (dark field)

CROSS PATTERNS

These precision crosses are supplied on a 2 x 2 x 0.060 inch (51 x 51 x 1.5 mm) glass substrate in a durable very dark blue photographic emulsion. Each cross line is 0.004 inch (0.1 mm) wide by 0.5 inch (12.7 mm) long.



1380 CROSS PATTERNS **$33.00**
Positive (light field)

1381 CROSS PATTERNS **$33.00**
Negative (dark field)

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ORIEL

1271 OPTIC MOUNT—1 inch
This mount holds mirrors, windows, lenses or filters of 1 inch or 25 mm diameter up to ⅜ in. (9.5 mm) thick, by a threaded Delrin retaining ring. **$26.00**

1281 ROD MOUNTED MIRROR—1 inch
An aluminized and silicon monoxide overcoated mirror is placed in a 1271 Optic Mount. **$39.00**

1272 OPTIC MOUNT—1½ inch—*Not shown*
This mount holds mirrors, windows, filters or lenses of 1½ inch or 37.5 mm diameter up to ½ inch (12.7 mm) thick, by a threaded Delrin retaining ring. Height from base to optical axis is 29 mm. **$34.50**

1282 ROD MOUNTED MIRROR—1½ inch
An aluminized and silicon monoxide overcoated mirror is placed in a 1272 Optic Mount. Aperture is 1.25 inch (32 mm). **$48.00**

1273 OPTIC MOUNT—2 inch
This mount holds mirrors, windows, lenses and filters of 2 inch or 50 mm diameter up to ½ inch (13 mm) thick with a threaded Delrin retaining ring. **$47.00**

1452 SPECIAL ADAPTER SET FOR 2 inch MOUNT
For smaller diameter optics up to 0.38 in. (9.5 mm) thick SPECIFY DIAMETER OF OPTIC **$23.50**

1283 ROD MOUNTED MIRROR—2 inch
An aluminized and silicon monoxide mirror is placed in a 1273 Optic Mount. **$65.00**

1274 OPTIC MOUNT—3 inch
This mount holds mirrors, windows, lenses and filters of 3 inch or 75 mm diameter up to ⅞ inch (22 mm) thick with a threaded Delrin retaining ring. **$61.00**

1755 SPECIAL ADAPTER SET FOR 3 inch MOUNT
For smaller diameter optics up to 0.75 inch (19 mm) thick. SPECIFY DIAMETER OF OPTIC **$28.50**

1284 ROD MOUNTED MIRROR—3 inch
An aluminized and silicon monoxide mirror is placed in a 1274 Optic Mount. **$90.00**

1275 OPTIC MOUNT—4 inch
This mount holds mirrors, windows, lenses and filters of 4 inch or 100 mm diameter up to 1 inch (25 mm) thick with a threaded Delrin retaining ring. **$68.00**

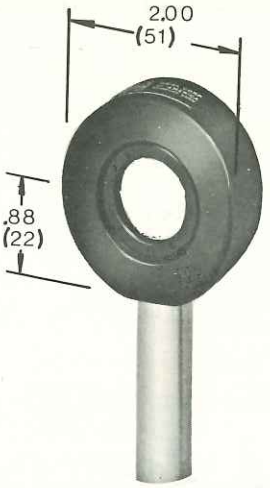
1469 SPECIAL ADAPTER SET FOR 4 inch MOUNT
For smaller diameter optics up to 0.875 inch (22 mm) thick. SPECIFY DIAMETER OF OPTIC **$36.00**

1285 ROD MOUNTED MIRROR—4 inch
An aluminized and silicon monoxide mirror is placed in a 1275 Optic Mount. **$103.00**

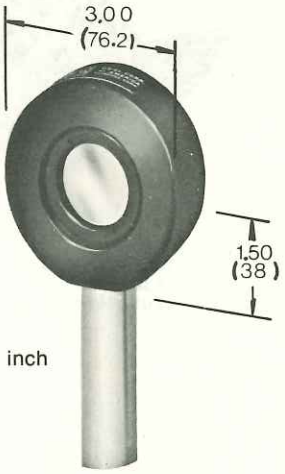
1270 OPTIC MOUNT—6 inch
This mount holds mirrors, windows, lenses and filters of 6 inch or 152 mm diameter up to 1½ inch (38 mm) thick with threaded retaining ring. No rod is included. ORDER ROD SEPARATELY FROM PAGE 7.
$99.00

1783 SPECIAL ADAPTER SET FOR 6 inch MOUNT
For smaller diameter optics up to 1.375 inch (35 mm) thick. SPECIFY DIAMETER OF OPTIC **$52.00**

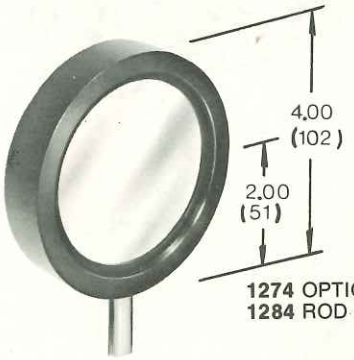
1261 ROD MOUNTED MIRROR—6 inch
An aluminized and silicon monoxide mirror is placed in a 1270 mount. No rod is included. ORDER ROD SEPARATELY FROM PAGE 7.
$157.00



1271 OPTIC MOUNT—1 inch

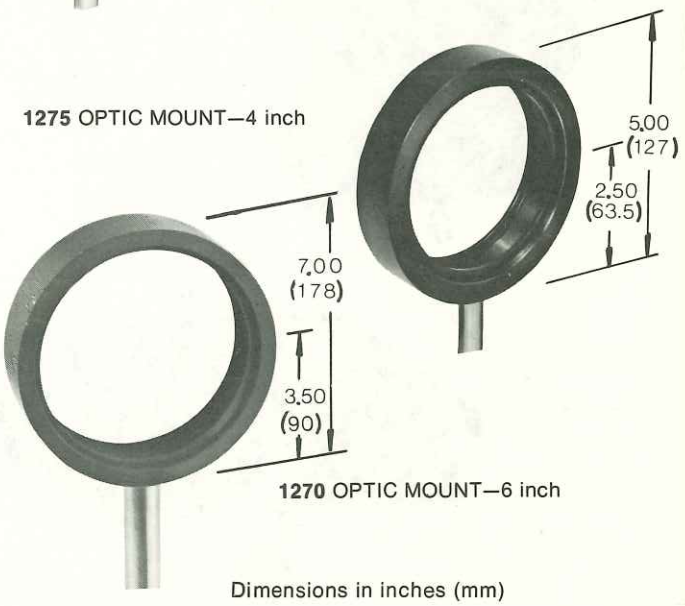


1273 OPTIC MOUNT—2 inch
1283 ROD MOUNTED MIRROR—2 inch



1274 OPTIC MOUNT—3 inch
1284 ROD MOUNTED MIRROR—3 inch

1275 OPTIC MOUNT—4 inch



1270 OPTIC MOUNT—6 inch

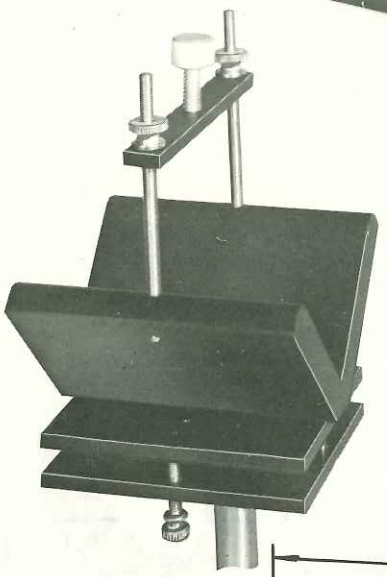
Dimensions in inches (mm)

The prices shown are for U.S. only. Prices for export are slightly higher.

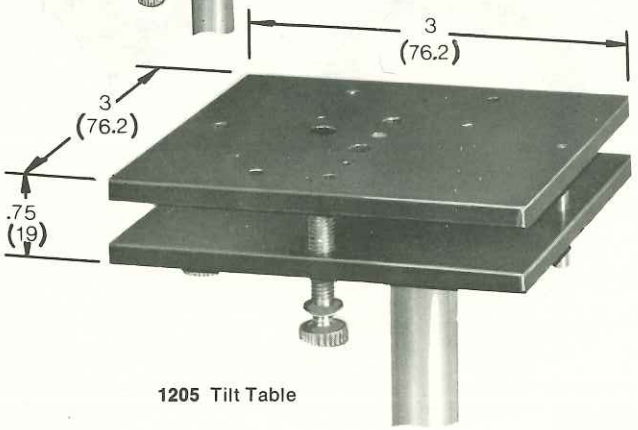
ORIEL ROD MOUNTED ACCESSORIES

1386 Vee Block
Tube Holder 2¼ Inch

1387 Vee Block
Tube Holder – 4 Inch



1388 Tilting Vee Block
Tube Holder 2¼ Inch



1205 Tilt Table

1386 VEE BLOCK TUBE HOLDER—2¼ inch

This rod mounted vee holds tubes from ¾ to 2¼ inches (19 to 57 mm) diameter. The tube is clamped by a cross bar and thumb screws. **$49.00**

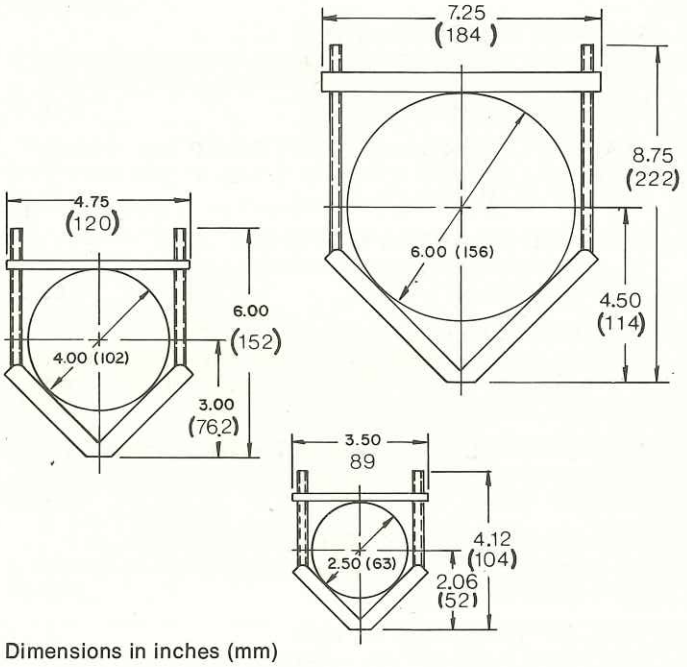
1387 VEE BLOCK TUBE HOLDER—4 inch

This vee holds tubes from 1.75 to 4 inches (45 to 102 mm) diameter. The tube is clamped by a cross bar and thumb screws. **$54.00**

1385 VEE BLOCK TUBE HOLDER—6 inch

This vee holds tubes from 3 inch, to 6 inch (76 mm to 152 mm) diameter. The tube is clamped by a cross bar and thumb screws. The rod is not included. ORDER ROD SEPARATELY FROM PAGE 7.

$105.00



Dimensions in inches (mm)

1388 TILTING VEE BLOCK TUBE HOLDER —2¼ inch

This is a 1386 Vee Block Tube Holder on a 1205 Tilt Table (see below). **$146.00**

1389 TILTING VEE BLOCK TUBE HOLDER—4 inch

This is a 1387 Vee Block Tube Holder on a 1205 Tilt Table (see below). **$152.00**

1205 TILT TABLE

This takes any rod mounted accessory and provides independent tilting about two horizontal axes driven by two spring loaded thumb screws. The accessory is mounted directly by the ¼-20 tapped hole. This is very useful under a prism table or tube mount. **$99.00**

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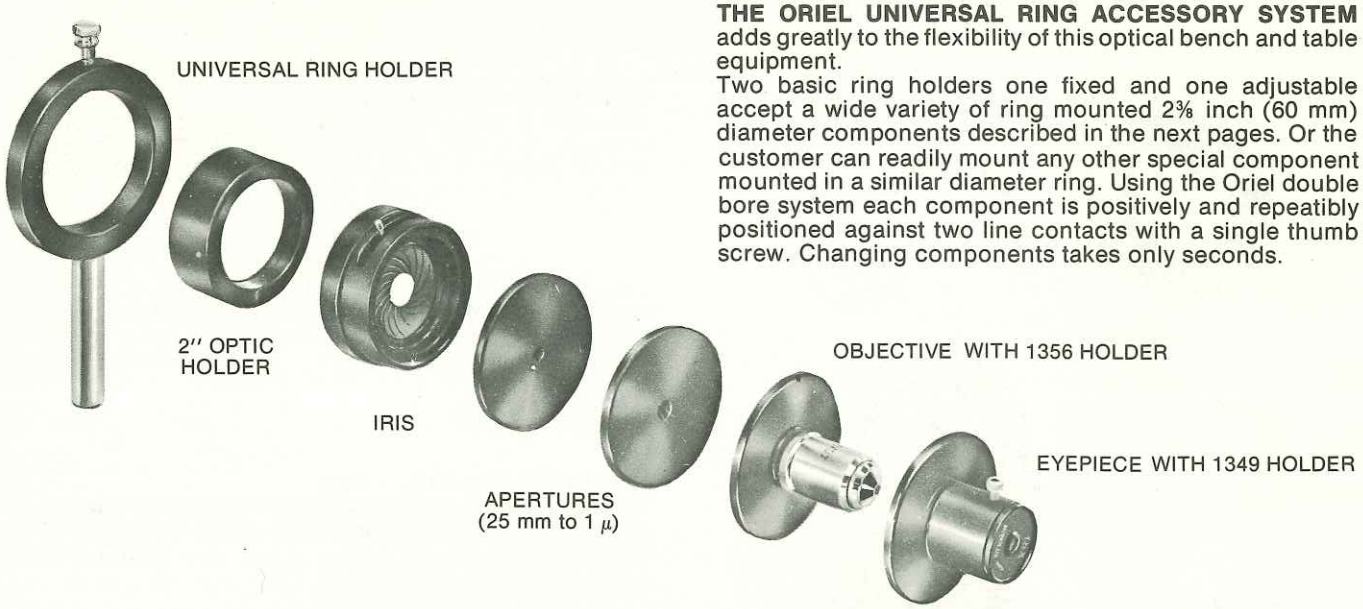
ORIEL ROD MOUNTED UNIVERSAL RING SYSTEM



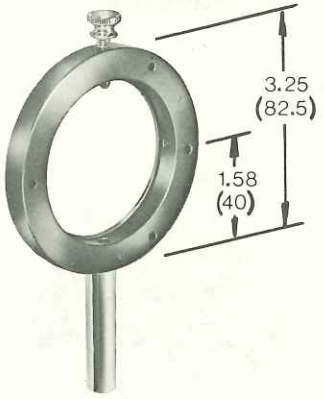
THE ORIEL UNIVERSAL RING ACCESSORY SYSTEM adds greatly to the flexibility of this optical bench and table equipment.

Two basic ring holders one fixed and one adjustable accept a wide variety of ring mounted 2⅜ inch (60 mm) diameter components described in the next pages. Or the customer can readily mount any other special component mounted in a similar diameter ring. Using the Oriel double bore system each component is positively and repeatibly positioned against two line contacts with a single thumb screw. Changing components takes only seconds.

1304 UNIVERSAL RING HOLDER

This ring holder accepts any of the ring mounted components described on the next pages. These components are positioned against two line contacts by a single thumb screw.

$44.00

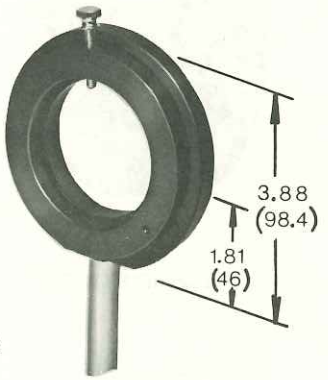


1304 UNIVERSAL, RING HOLDER

1307 ADJUSTABLE UNIVERSAL RING HOLDER

This ring holder is similar to the 1304 above except that it is adjustable in a plane perpendicular to the optical axis. Two thumb screws are loosened, the holder is positioned and the thumb screws tightened. A smooth "stictionless" motion facilitates adjustment.

$71.00



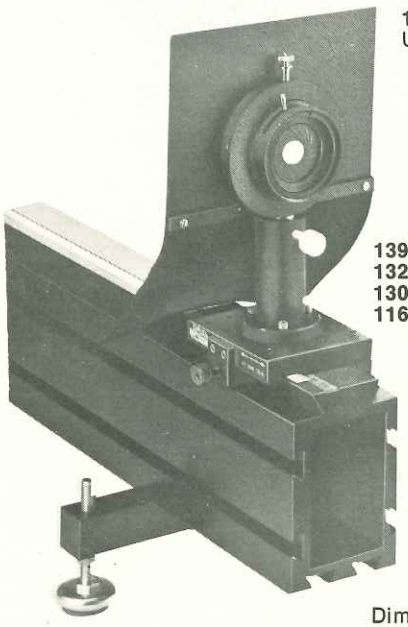
1307 ADJUSTABLE UNIVERSAL RING HOLDER

1391 PHOTOMETRIC BAFFLE

The black baffle fastens to the outside of the 1304 or 1307 Universal Ring Holder above without disturbing the mounting of the ring mounted components.

This in combination with an aperture or iris diaphragm forms an effective baffle for radiometric or photometric work, thus preventing stray light from reflecting off components or off the bench top itself into the detector.

$36.00



1392 PHOTOMETRIC BAFFLE AND
1327 IRIS DIAPHRAGM ON
1304 UNIVERSAL RING HOLDER ON
1168 CARRIER

Dimensions in inches (mm)

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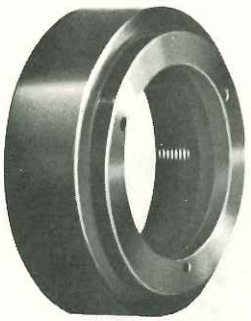
ORIEL RING MOUNTED ACCESSORIES

THESE ACCESSORIES FIT DIRECTLY INTO THE 1304 OR 1307 UNIVERSAL RING HOLDERS ON PAGE 15

1322 OPTIC HOLDER 2 inch shown on **1304** UNIVERSAL RING HOLDER

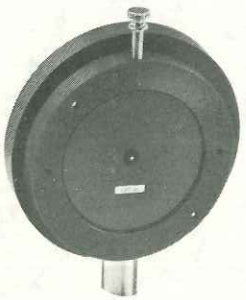
1324 1 INCH OPTIC HOLDER



1323 1½ INCH OPTIC HOLDER

1327 IRIS DIAPHRAGM

PRECISION APERTURE



PRECISION PINHOLE SHOWN IN **1307** ADJUSTABLE UNIVERSAL RING HOLDER

1322 OPTIC HOLDER—2 inch
This holds 2 inch or 50 mm diameter windows, mirrors, or lenses up to ½ inch (13 mm) thick using a Delrin threaded retaining ring. **PRICE $25.00**

1323 OPTIC HOLDER—1½ inch
This holds 1½ inch or 37.5 mm diameter windows, mirrors or lenses up to ½ inch (13 mm) thick using a Delrin threaded retaining ring. **PRICE $28.00**

1324 OPTIC HOLDER—1 inch
This holds 1 inch or 25 mm diameter windows, mirrors or lenses up to ⅜ inch (9.5 mm) thick using a Delrin threaded retaining ring. **PRICE $25.00**

1327 IRIS DIAPHRAGM
This is a lever-operated, continuously adjustable aperture from 0.08 inches (2 mm) up to 1.38 inches (35 mm) diameter. This Iris consists of 16 thin metal, blackened leaves which produce a very near circular aperture with minimum reflection. **PRICE $57.00**

PRECISION APERTURES
Each aperture is precisioned-machined in a black-anodized 2⅜ inch (60.4 mm) O.D. aluminum plate ⅛ inch (3.2 mm) thick. The conical shape provides for maximum energy transmission and a clean, well defined, circular knife-edged aperture.

Model No.	Diameter (mm)	Price
1330	25	$15.00
1332	10	15.00
1334	5	15.00
1336	2.5	15.00
1338	1	15.00

PRECISION PINHOLES
Every pinhole is a precisely-round hole machined in thin copper foil; the copper foil is permanently held in a black-anodized 2⅜ inch (60.4 mm) O.D. aluminum plate.

Model No.	Diameter (Microns)	Price
1340	500	$45.00
1342	250	45.00
1344	100	45.00
1346	50	45.00
1348	25	45.00
1350	10	48.00
1352	5	55.00
1354	1	61.50

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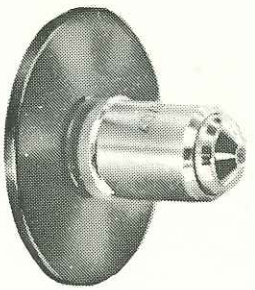
1356 MICROSCOPE OBJECTIVE HOLDER
This holder has standard microscope objective threads in the center of a 2⅜ inch (60.4 mm) diameter plate.

$15.00



1356 MICROSCOPE OBJECTIVE HOLDER WITH OBJECTIVE

MICROSCOPE OBJECTIVES
This series of achromatic objective provides 5X to 60X magnification. The numerical aperture and power are inscribed on each objective.

Catalog No.	Power	Effective Focal Length (mm)	f/No.	Price
1357	5X	30	10	**$45.00**
1358	10X	16	3	**$46.00**
1359	20X	9	2	**$65.00**
1360	40X	5	1.5	**$78.00**
1361	60X	3	1.2	**$82.00**

1350 MICROSCOPE EYEPIECE HOLDER WITH EYEPIECE

1349 MICROSCOPE EYEPIECE HOLDER
This holder accommodates standard-barrel, 0.917 inch (23.2 mm) diameter microscope eyepieces in a tube attached to a 2⅜ inch (60.4 mm) diameter black-anodized plate.

$18.50

MICROSCOPE EYEPIECES
These Huyghenian eyepieces are mounted in the standard 0.917 inch (23.2 mm) diameter barrel and will fit the 1350 holder.

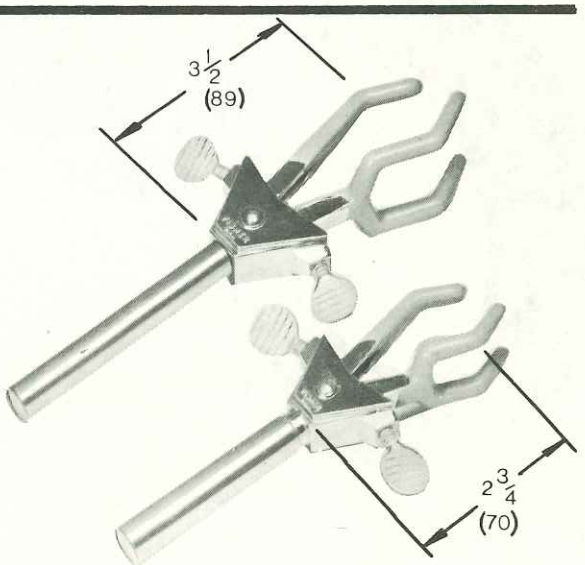
Catalog No.	Power	Price
1351	5X	**$19.50**
1355	10X	**$20.00**
1353	15X	**$20.00**

1363 RING MOUNTED DISC

1363 RING MOUNTED DISC
This blank 2⅜ inch (60 mm) diameter by ⅛ inch (3 mm) thick disc can be used to mount other accessories to the Oriel Ring Holders.

$13.00

ROD MOUNTED OPTICAL CLAMPS
These clamps are specially chosen for optical bench or table use to hold odd shaped or tubular objects. The clamps are mounted on standard 14.3 mm stainless steel optical bench rods. These bi-directional clamps allow positioning of the item held perpendicular to the rod axis. **They can be placed directly into a rod holder.**



Dimensions in inches (mm)

1423 MEDIUM CLAMP
This will hold tubular objects from ⅛ to 2¼ inches (3 to 57 mm) diameter. The shaft is 2⅞ inches (73 mm) long.

$21.00

1424 LARGE CLAMP
This will accept tubular objects from ¼ to 3½ inches (6 to 90 mm) diameter. The shaft is 3⅞ inches (98 mm) long.

$23.00

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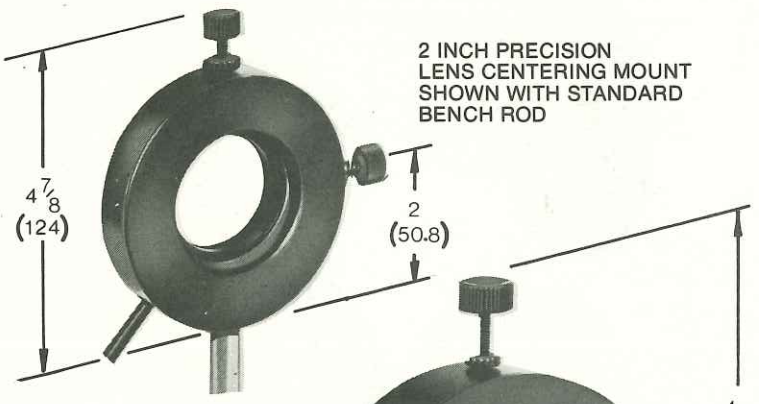
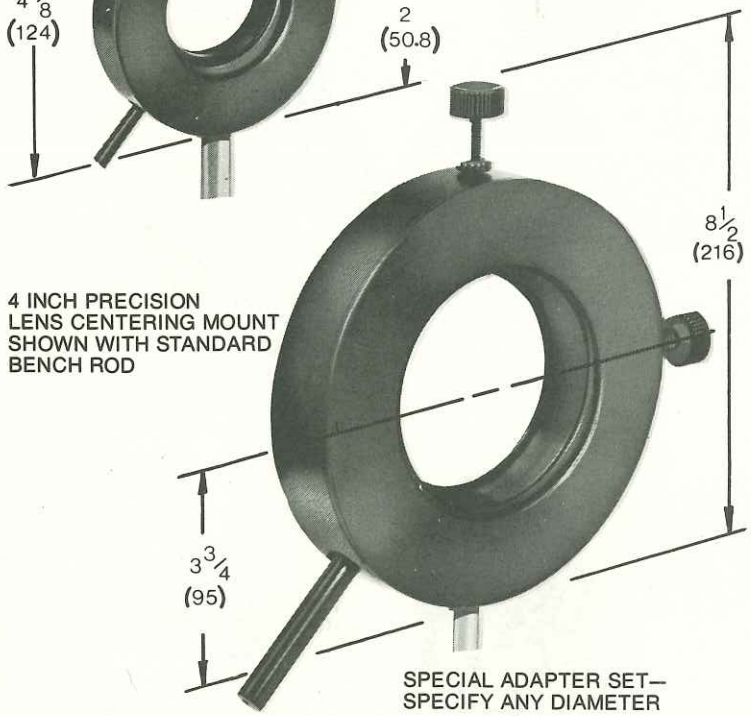
ORIEL ROD MOUNTED LENS CENTERING MOUNTS

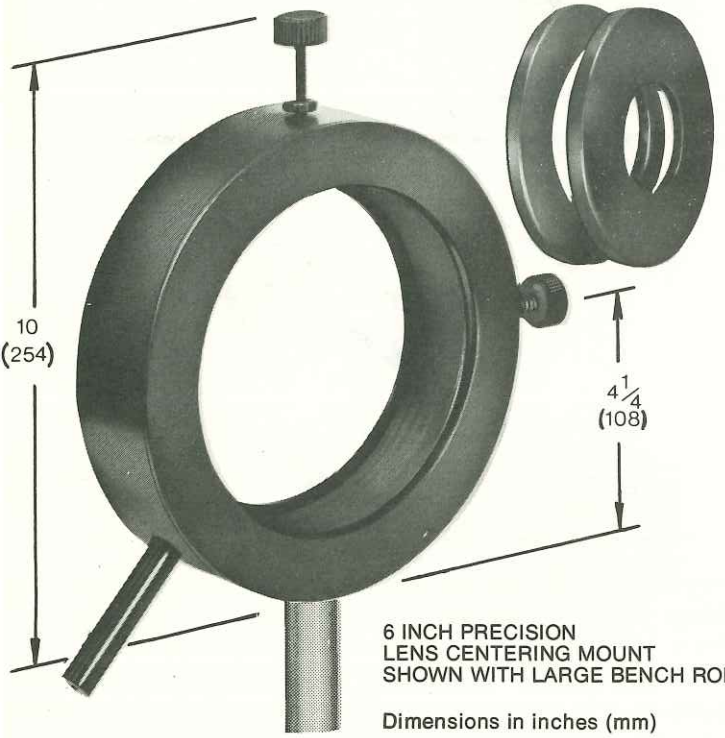


2 INCH PRECISION
LENS CENTERING MOUNT
SHOWN WITH STANDARD
BENCH ROD



4 INCH PRECISION
LENS CENTERING MOUNT
SHOWN WITH STANDARD
BENCH ROD

SPECIAL ADAPTER SET—
SPECIFY ANY DIAMETER



6 INCH PRECISION
LENS CENTERING MOUNT
SHOWN WITH LARGE BENCH ROD.

Dimensions in inches (mm)

1733 PRECISION LENS CENTERING MOUNT —2 inch

This provides stable mounting of lenses with smooth separate horizontal and vertical screw adjustments for precise centering a lens in a beam. The resolution is 0.5μm over a range of ±0.25 inch (±6.4 mm).

The holder will accept 2 inch or 50 mm diameter lenses up to 0.5 inch (13 mm) thick*. The aperture is 1.75 inch (44 mm).

A ¼-20 tapped hole in the base allows for rod mounting with 14.3 mm or 25.4 mm diameter standard or large rods. The rod is not included. ORDER ROD SEPARATELY ON PAGE 7. **$118.00**

1452 SPECIAL ADAPTER SET for 2 inch Mounts

Accept any optic up to 0.375 inch (9.5 mm) thick*. SPECIFY DIAMETER OF OPTIC. **$23.50**

1734 PRECISION LENS CENTERING MOUNT —4 inch

This provides stable mounting of lenses with smooth, separate horizontal and vertical screw adjustments for precise centering a lens in a beam. The resolution is ±1μm over a range of ±0.375 inch (9.5 mm).

The holder will accept 4 inch or 100 mm diameter lenses up to 1.0 inch (25.4 mm) thick*. The aperture is 3.75 inch (95 mm).

A ¼-20 tapped hole in the base allows for rod mounting with a 14.3 or 25.4 mm diameter standard or large rods. The rod is not included. ORDER ROD SEPARATELY ON PAGE 7. **$298.00**

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DEC 14 1978
GROUP 230

1469 SPECIAL ADAPTER SET for 4 inch Mounts

Accepts any optic up to 0.875 inch (22 mm) thick.* SPECIFY DIAMETER OF OPTIC. **$36.00**

1735 PRECISION LENS CENTERING MOUNT —6 inch

This provides stable mounting of lenses with smooth, separate horizontal and vertical screw adjustments for precise centering a lens in a beam. The resolution is 1μm over a range of ±0.5 inch (12.7 mm).

The holder will accept 6 inch or 150 mm diameter lenses up to 1.5 inch (38 mm) thick.* The aperture is 5.75 inch (146 mm).

A ¼-20 tapped hole in the base allows for rod mounting with a 14.3 or 25.4 mm diameter standard or large rods. Large rods are preferred. The rod is not included. ORDER ROD SEPARATELY ON PAGE 7. **$410.00**

1783 SPECIAL ADAPTER SET for 4 inch Mounts

Accepts any optic up to 1.375 inch (35 mm) thick*. SPECIFY DIAMETER OF OPTIC. **$53.00**

***This thickness refers to the thickness of the lens at the aperture diameter.**

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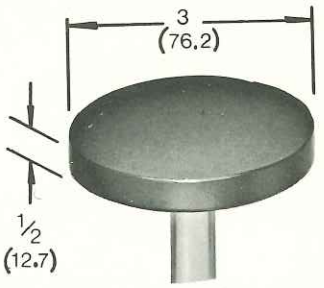
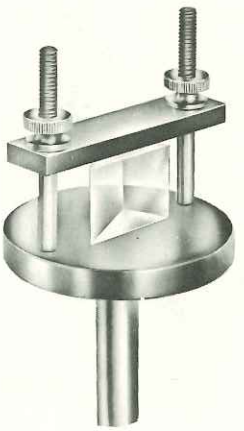
ORIEL ROD MOUNTED PRISM TABLES

1269 PRISM TABLE
This is a 3 inch (76 mm) diameter flat table for supporting prisms or other components. You may find a 1251 Rod Collar (p.7) particularly useful with this table
$21.00



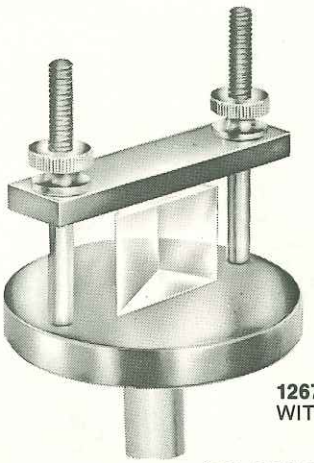
1269 PRISM TABLE

1268 PRISM TABLE WITH CLAMP
Similar to the 1269 above with a cushioned clamping bar. This will hold prisms up to 2 x 2 inch (51 x 51 mm).
$48.00



1268 PRISM TABLE WITH CLAMP

1264 PRISM TABLE—NOT SHOWN
This is a 6.0 inch (152 mm) diameter flat top table without clamp for supporting prisms or other components. Supplied without rod. Order rod separately from page 7.
You may find a Rod Collar particularly useful with this table. **$39.00**



1267 LARGE PRISM TABLE WITH CLAMP AND ROD

1267 PRISM TABLE WITH CLAMP
This is similar to the Prism Table above with a cushioned clamping bar. This will hold prisms up to 4 x 4 inches (102 x 102 mm). Order rod separately (p.7). **$72.00**

1741 ADJUSTABLE PRISM TABLE WITHOUT CLAMP—BASE MOUNTED

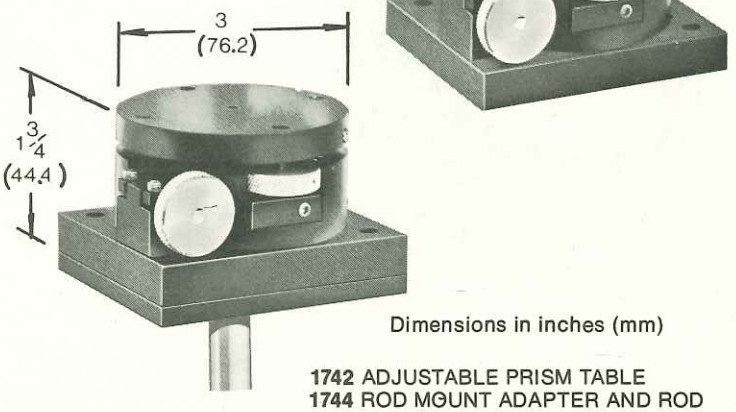
PRECISION ADJUSTABLE PRISM TABLES
Tilt and Rotation Tables
These tables provide stable precise high resolution angular adjustment of the table top about three axes: ±5° rotation about the vertical axis and ±3° tilt about two perpendicular horizontal axes. The resolution about all axes is 1 arc second.

This unit is base mounted to mount directly onto carriers or table bases. To rod mount order the 1744 Rod Mounting Adapter and a suitable standard or large rod from page 7.

1741 Adjustable Prism Table without Prism Clamp base mounted..... **$240.00**

1742 Adjustable Prism Table with Prism Clamp base mounted..... **$267.00**

1744 Rod Mounting Adapter Order rods separately (p.7). **$17.00**



Dimensions in inches (mm)

1742 ADJUSTABLE PRISM TABLE
1744 ROD MOUNT ADAPTER AND ROD

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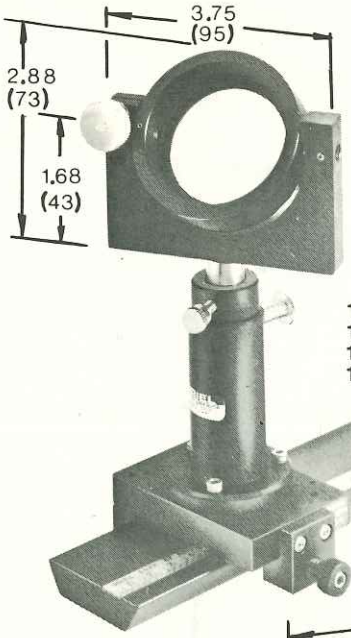
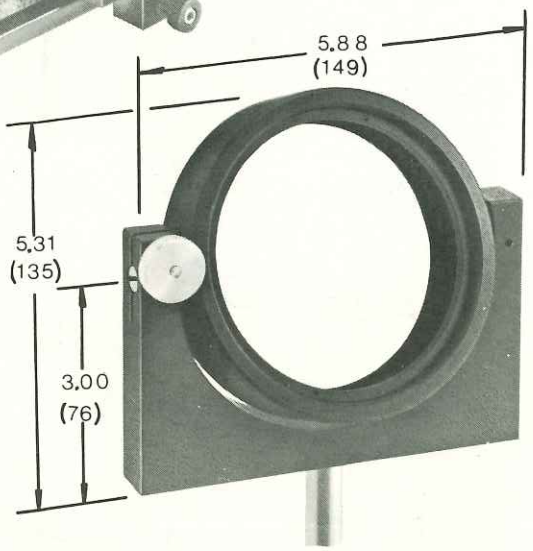
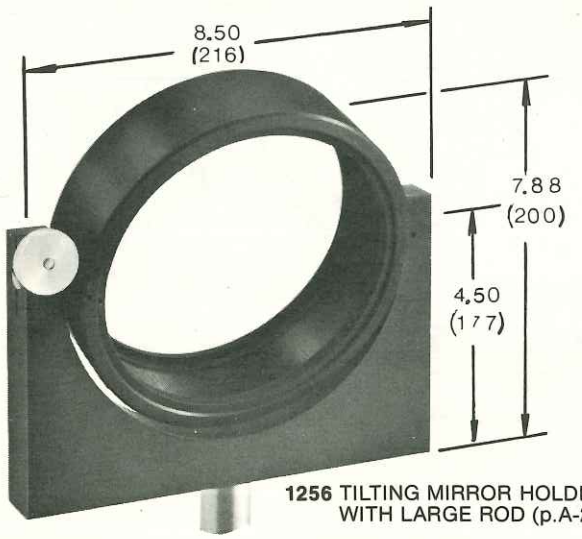
ORIEL ROD MOUNTED TILTING MIRROR HOLDERS



1262 TILTING MIRROR HOLDER WITH
1251 ROD COLLAR
1243 ROD MOUNT
1164 UNIVERSAL CARRIER



1254 TILTING MIRROR HOLDER—4 INCH



1256 TILTING MIRROR HOLDER—6 INCH WITH LARGE ROD (p.A-23).

Dimensions in inches (mm)

1262 TILTING MIRROR HOLDER—2 inch

Manual tilting of an optical component 360° about the horizontal axis is possible with this holder. The position is held with a clamping thumb screw. The holder accepts 2 inch (50 mm) diameter mirrors up to ½ inch (13 mm) thick held by a threaded Delrin ring. When used with a Rod Collar (page 7) this becomes a manual X-Y angle adjust.

$76.00

1452 SPECIAL ADAPTER SET FOR 2 INCH MOUNT

for smaller diameter optics up to 0.38 inch (9.5 mm) thick. SPECIFY DIAMETER OF OPTIC. **$23.50**

1263 TILTING MIRROR

This is a 1262 tilting Mirror Holder with a 2 inch diameter mirror coated with aluminum and a silicon monoxide overcoat. **$93.00**

1254 TILTING MIRROR HOLDER—4 inch

This is for manual tilting of a mirror or beam splitter 360° about the horizontal axis. The position is held by a clamping thumbscrew.

The holder accepts 4 inch or 100 mm diameter mirrors up to 1 inch (25.4 mm) thick held by a threaded ring. When used with a Rod Collar (page 7) this makes an effective manual X-Y tilter. **$157.00**

1469 SPECIAL ADAPTER SET FOR 4 INCH MOUNT

for smaller diameter optics up to 0.875 (22 mm) thick. SPECIFY DIAMETER OF OPTIC. **$36.00**

1255 TILTING MIRROR

This is a 1254 Tilting Mirror Holder with a mirror coated with aluminum and a silicon monoxide overcoat. **$198.00**

1256 TILTING MIRROR HOLDER—6 inch

This is for manual tilting of a mirror or beam splitter 360° about the horizontal axis. The position is held by a clamping thumbscrew.

The holder accepts 6 inch or 150 mm diameter mirrors up to 1.5 inch (38 mm) thick held by a threaded ring. When used with a Rod Collar (page 7) this makes an effective manual X-Y tilter. **$279.00**

1783 SPECIAL ADAPTER SET FOR 6 INCH MOUNT

for smaller diameter optics up to 1.375 (35 mm) thick. SPECIFY DIAMETER OF OPTIC. **$52.00**

1257 TILTING MIRROR

This is a 1256 Tilting Mirror Holder with a mirror coated with aluminum and a silicon monoxide overcoat. **$337.00**

SEE ORIEL GENERAL CATALOG FOR PRECISION MIRRORS AND BEAM SPLITTERS FOR THESE HOLDERS.

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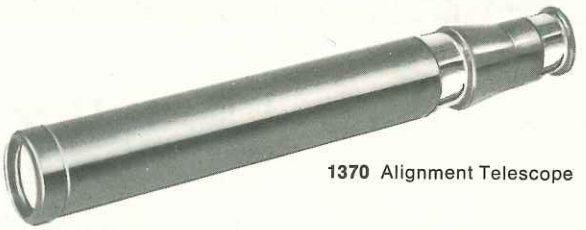
1370 ALIGNMENT TELESCOPE

This is a 5 power telescope that will focus from infinity down to 65 cm. The image of the object is super imposed on a reticle cross hair inside the telescope. Separate focussing is provided for the reticle and for the object.

To align a series of objects in a straight line merely position each so that it appears centered on the cross hair when viewed through the telescope. **PRICE $163.00**



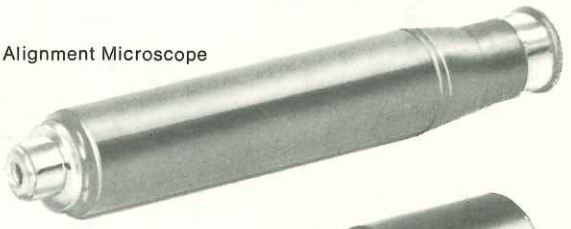
1370 Alignment Telescope

1370 Alignment Telescope in **1375** Adjustable Scope Mount

1371 ALIGNMENT MICROSCOPE

This is a 20 power microscope with a focal plane located 50 mm from the final objective lens. It has an integral reticle cross hair.

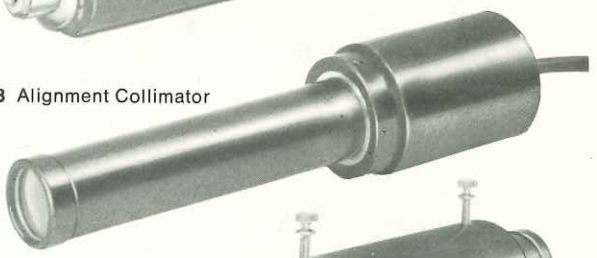
Objects can be placed in position by aligning them with the cross hair. Distances can be measured accurately by mounting the microscope on a 1174 Micrometer Driven Carrier page 8, by focussing on one object then translating the microscope until the second object is in focus and recording the distance of translation on the micrometer.
PRICE $163.00



1371 Alignment Microscope

1373 ALIGNMENT COLLIMATOR – ILLUMINATED

In this device a cross is placed at the focal point of a 175 mm focal length f/6 telescope objective. The objective focussing is provided so that an image of the illuminated cross can be placed down at any distance from 50 cm to infinity. The cross is illuminated with a small 10 watt lamp. Focussing is provided so that an illuminated image of the cross can be placed down range at any distance from 65 cm to infinity. Various objects can then be positioned in a straight line by placing them at the center of this image. The light source is removable so that an external source can be used. **PRICE $185.00**



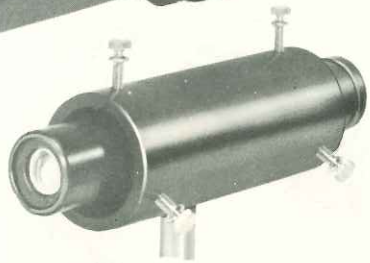
1373 Alignment Collimator

1372 ALIGNMENT COLLIMATOR

This is similar to 1373 above but without the light source. An external source can be used. For best results the source should be imaged at the cross with an f/6 beam to fill the objective lens. **PRICE $129.00**

1375 ADJUSTABLE SCOPE MOUNT

This will mount any of the above Telescope, Microscope or Collimator in a six point adjustable suspension which in turn is mounted on a 70 mm rod. **PRICE $38.00**



1372 Alignment Collimator Mounted in **1375** Adjustable Scope Mount

1376 TILTING SCOPE MOUNT

This is a combination of a 1375 Scope Mount and a 1205 Tilt Table page 16. This takes any Telescope, Microscope or Collimator above and provides independent tilt about two horizontal axes driven by two spring loaded thumb screws. The accessory is mounted directly by its ¼-20 tapped hole.
PRICE $136.00

1376 Tilting Scope Mount with **1370** Alignment Telescope

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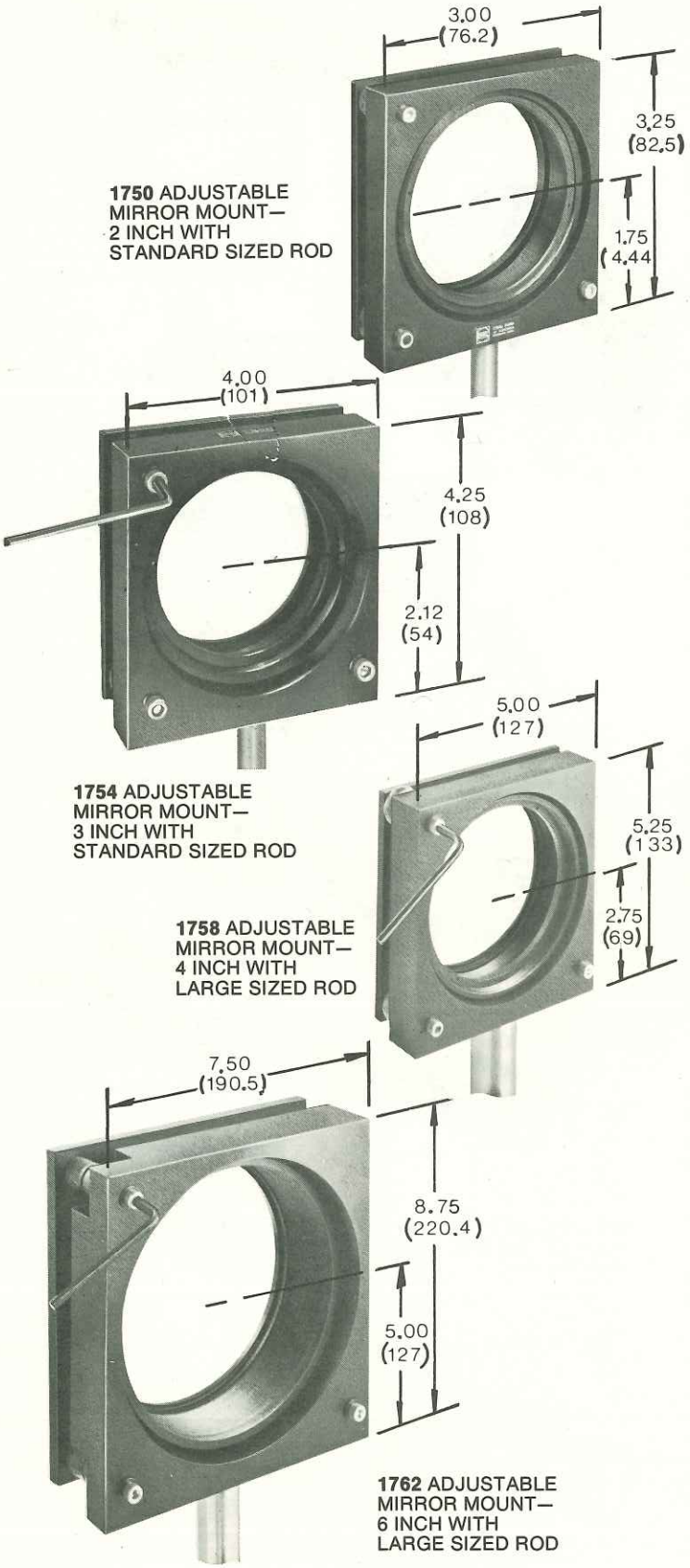
ORIEL ADJUSTABLE MIRROR MOUNT Rod Mounted



1750 ADJUSTABLE MIRROR MOUNT— 2 INCH WITH STANDARD SIZED ROD

1754 ADJUSTABLE MIRROR MOUNT— 3 INCH WITH STANDARD SIZED ROD

1758 ADJUSTABLE MIRROR MOUNT— 4 INCH WITH LARGE SIZED ROD

1762 ADJUSTABLE MIRROR MOUNT— 6 INCH WITH LARGE SIZED ROD

Dimensions in inches (mm)

This series of mirror mounts adjusts the plane of a mirror or beam splitter about the horizontal and vertical axes independently. The mount is designed for high stability and low cost for applications where the high resolution of the more precision mounts on following pages are not required. The adjustments are made with a removable right angle socket head wrench to a *resolution of 2 to 3 seconds.*

Each of these mounts has a ¼-20 tapped hole for rod mounting. *The rods are not included.* Order standard 14.3 mm diameter rods from page 7

1750 ADJUSTABLE MIRROR MOUNT—2 inch Rod Mounted

This mount accepts 2 inch or 50 mm diameter mirrors up to ½ inch (13 mm) thick held by a threaded Delrin retaining ring. Smaller sizes can be accommodated with adaptors listed below. The mirror is adjustable over a range of ±1.5°. Rod not included. **$72.00**

1452 Special Two plate Adapter set for smaller diameter optics up to 0.44 inch (11 mm thick). SPECIFY DIAMETER OF OPTIC **$23.50**

1454 Self contained Adapter for 1 inch or 25 mm optics **$24.00**

1455 Self contained Adapter for 1.5 inch or 37.5 mm optics **$27.00**

1754 ADJUSTABLE MIRROR MOUNT—3 inch Rod Mounted

This mount accepts 3 inch or 75 mm diameter mirrors up to 0.87 inch (22 mm) thick held by a threaded Delrin retaining ring. Smaller sizes can be accommodated with adapters listed below. Mount is adjustable over a range of ±2°. Rod not included. **$103.00**

1755 Special Two Plate Adapter set for smaller diameter optics up to 0.75 inch (19 mm thick) SPECIFY DIAMETER OF OPTIC **$28.50**

1758 ADJUSTABLE MIRROR MOUNT—4 inch Rod Mounted

This mount accepts 4 inch or 100 mm diameter mirrors up to 1.0 inch (25.4 mm) thick held by a threaded Delrin retaining ring. Smaller sizes can be accommodated with adapters listed below. Mount is adjustable over a range of ±2°. Rod not included. **$136.00**

1469 Special Two Plate Adapter Set for smaller diameter optics up to 0.87 inch (22 mm) thick. SPECIFY DIAMETER OF OPTIC..... **$36.00**

1762 ADJUSTABLE MIRROR MOUNT—6 inch Rod Mounted

This mount accepts 6 inch or 150 mm diameter mirrors up to 1.5 inch (38 mm) thick held by a threaded Delrin retaining ring. Smaller sizes can be accommodated with adapters listed below. This mount is adjustable over a range of ±2°. Rod not included. **$298.00**

1783 Special Two Plate Adapter set for smaller diameter optics up to 1.37 inch (35 mm thick) SPECIFY DIAMETER OF OPTIC **$52.00**

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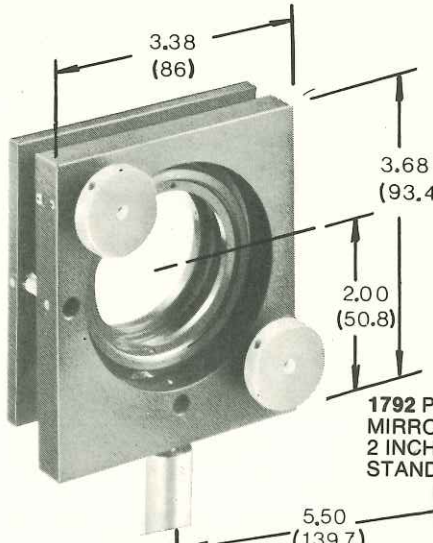
ORIEL PRECISION MIRROR MOUNTS Rod Mounted

These precision mirror mounts adjust the plane of a mirror or beam splitter about the horizontal and vertical axis independently by means of two fine pitch screws with thumb knobs.
The adjustable portion of the mount is spring loaded against a pivot ball and the two fine pitch screws held in a wobble free mounting. The result is a stable mount with smooth precise adjustments. The *resolution of these mounts is 0.3 to 1 arc seconds* depending on size.
A ¼-20 tapped hole is located in the base of these mounts for rod mounting. *The rods are not included.* Order standard 14.3 mm rods from page 7

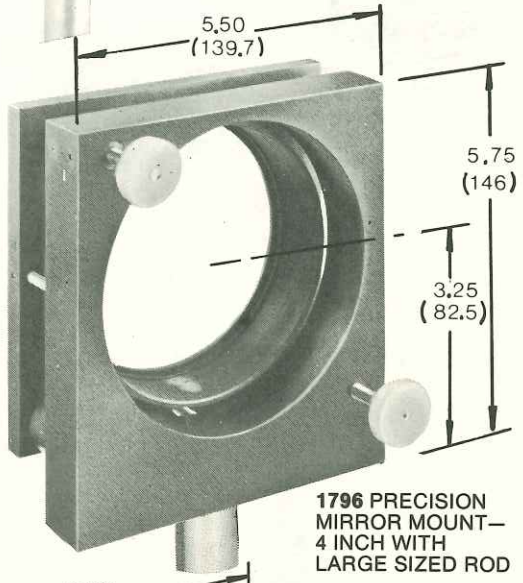


1792 PRECISION MIRROR MOUNT— 2 INCH WITH STANDARD SIZED ROD

1792 PRECISION MIRROR MOUNT—2 inch Rod Mounted

This mount accepts 2 inch or 50 mm diameter mirrors up to 0.5 inch (13 mm) thick held by a Delrin retaining ring. Smaller sizes can be accommodated with adapters listed below. The mirror is adjustable over a range of ± 6°. The resolution is 1 arc second. Rod not included. **$98.00**

1452 Special Two Plate Adapter Set for smaller diameter optics up to 0.44 inch (11 mm) thick. SPECIFY OPTIC DIAMETER..... **$23.50**
1454 Self-contained Adapter for 1 inch or 25 mm optics..... **$24.00**
1455 Self-contained Adapter for 1.5 inch or 37.5 mm optics. **$27.00**

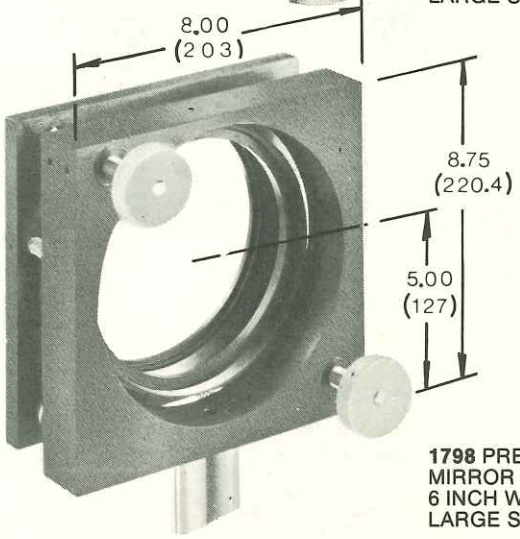


1796 PRECISION MIRROR MOUNT— 4 INCH WITH LARGE SIZED ROD

1796 PRECISION MIRROR MOUNT—4 inch Rod Mounted

This mount accepts 4 inch or 100 mm diameter mirrors up to 1.0 inch (25.4 mm) thick held by a Delrin retaining ring. Smaller sizes can be accommodated with adapters listed below. The mirror is adjustable over a range of ±6°. The resolution is 0.5 arc second. Rod not included. **$225.00**

1469 Special Two Plate Adapter Set for smaller diameter optics up to 0.87 inch (22 mm) thick. SPECIFY OPTIC DIAMETER..... **$36.00**



1798 PRECISION MIRROR MOUNT— 6 INCH WITH LARGE SIZED ROD

1798 PRECISION MIRROR MOUNT—6 inch Rod Mounted

This mount accepts 6 inch or 150 mm diameter mirrors up to 1.5 inch (38 mm) thick held by a Delrin retaining ring. Smaller sizes can be accommodated with adapters listed below. The mirror is adjustable over a range of ±6°. The resolution is 0.3 arc second. Rod not included. **$325.00**

1483 Special Two Plate Adapter Set for smaller diameter optics up to 1.37 inch (35 mm) thick. SPECIFY OPTIC DIAMETER..... **$52.00**

Dimensions in inches (mm)

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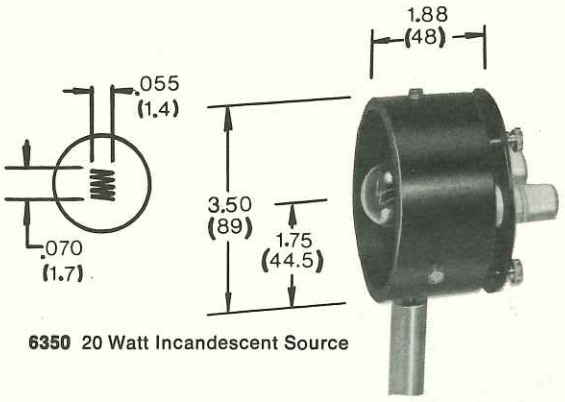
ORIEL ROD MOUNTED LIGHT SOURCES



6350 20 Watt Incandescent Source

6350 20 WATT INCANDESCENT SOURCE

This 6 volt lamp has been chosen for optical bench applications because of its small, very dense rectangular filament. Rated life is 100 hours. It is housed in a convection cooled cylindrical housing with a heat shield. The source is powered by an external variable output transformer. Power required is 115 or 220-240 Volts 50/60 Hz.

PRICE: $98.00

6353 Set of four Replacement Lamps for 6350 source.

PRICE: $39.00

6340 Point Source

6340 POINT SOURCE

This source is a tiny 0.18 mm (0.007 in.) diameter tungsten point heated by electron bombardment with a color temperature of 3200° K and a brightness of 25 cd/mm².

The 2 watt, 150 hour lamp is powered by an external low ripple power supply. Required input is 115 V or 220-240 volts 50-60 Hz. See page 17.

$275.00

6341 Replacement Lamp **$ 59.00**

6345 Socket for Standard Light Bulbs (Bulb Not Included)

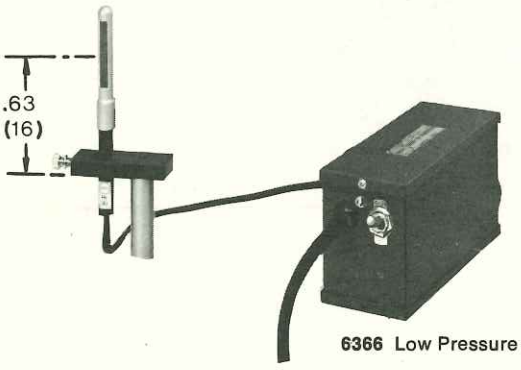
6345 SOCKET FOR STANDARD LIGHT BULBS

This is a medium socket for standard light bulbs which can be mounted horizontally or vertically from an optical bench rod. A six foot line cord with switch is attached. Bulb not included. **PRICE: $31.00**

LOW PRESSURE MERCURY SOURCE

This is an excellent fine line source for wavelength calibration or monochromatic line illumination or for fluorescence. The major output lines are 253.7, 313.0, 334.0, 365.0, 404.7, 435.8, 546.1, 577.0 and 579.0. A separate ballast transformer is included. For rod optical bench rod mounting order the 6367 Pencil Lamp Mount below.

6366 Mercury Source, 110 V 60 Hz **$161.00**
6366-1 Mercury Source, 220-240 V 50/60 Hz **$171.00**



6366 Low Pressure Mercury Source

6367 PENCIL LAMP MOUNT

This rod mounted device will hold the size I or II Low Pressure Mercury Lamps or any of the Rare Gas Lamps listed in Section D. **$ 21.00**

Dimensions in inches (mm)

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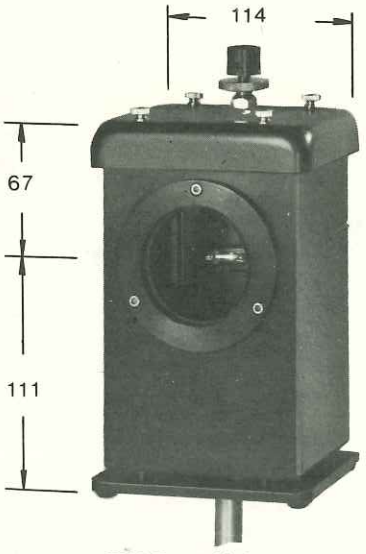
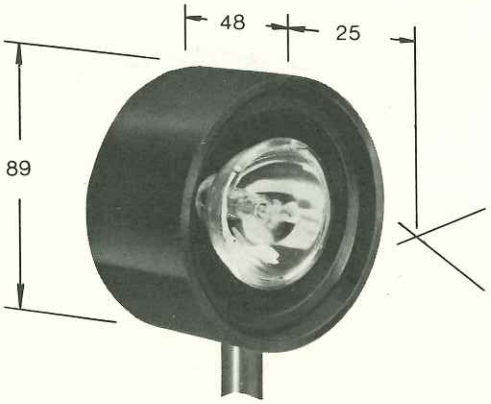


6321 Quartz-Halogen
Filament Lamp Source
Rod not included—see page 7.

Stabilized Power Supply
Used in **6323** or **6327** Source



6357 Dichroic Reflector Source

Dimensions in inches (mm)

6321 100 WATT QUARTZ HALOGEN (FILAMENT) LAMP SOURCE

This is a very high intensity lamp with a small compact (2.3 x 4.2 mm) filament. The filament is a flattened coil designed to produce an almost *completely dense rectangular source.* Provision is made in the housing to mount the filament horizontally or vertically.

The halogen cycle allows the filament to operate at very high brightness and 3000° K color temperature. The total lamp output is 3000 lumens. Because of its quartz envelope there is significant output in the U.V. down to 300 nm.

The housing is maintained at a comfortable temperature by a small internal blower.

This 12 volt lamp is powered by an external transformer. Required input is 115 V or 220 to 240 V/50-60 Hz.

See Sect. D for complete details including drawings, spectral irradiance curves and information on condensing lenses and accessories. **PRICE $247.00**

6323 100 WATT QUARTZ HALOGEN (FILAMENT) STABILIZED SOURCE

Same as 6321 above except that the lamp is powered by a highly stable regulated A.C. power supply adjustable from 8 to 14 volts. A meter displays volts or amperes. A 10% change in line voltage produces only a 1% change in *light output.* After a suitable warmup the output will change less than 1% in an eight hour period. This highly stable source is suitable for radiometric calibration work **PRICE $565.00**

6335 Set of 3 Replacement Lamps for 6321 or 6323 Source. **PRICE $47.00**

6327 PYREX CONDENSING LENS ATTACHMENT FOR THE 6321 or 6323 SOURCE

This mounts on the front of the housing and contains a fast f/0.75 26 mm focal length, 35 mm aperture aspheric pyrex condensing lens mounted in a focussing sleeve. This will produce a collimated or focussed beam and will take all 1½ inch accessories in Sect. D. **PRICE $119.00**

6356 100 WATT DICHROIC REFLECTOR SOURCE

This is a high intensity quartz halogen projection lamp mounted in a small circular housing. It produces an extremely high intensity beam which is focussed to a 12 mm diameter spot at 25 mm distance from the front of the housing. Much of the heat from the unwanted infrared is transmitted to the rear by the dichroic reflector.

This 12 volt lamp is powered by an external transformer. Required input is 115 V or 220 to 240 V/50-60 Hz. **PRICE $198.00**

6357 100 WATT STABILIZED DICHROIC REFLECTOR SOURCE

Same as Model 6356 except that the lamps are powered by the 6329 regulated stabilized power supply described in Model 6323. **PRICE $519.00**

6359 Replacement 100 watt DICHROIC REFLECTOR LAMP **PRICE $25.00**

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6301 XENON OR MERCURY ARC LAMP SOURCE

These are the brightest "conventional" lamps available. This source will operate either a 75 watt Xenon arc lamp or a 100 watt mercury arc. See table in Catalog for specifications. Note the extremely small arc sizes. Both lamps have a UV transmitting fused silica envelope. The Xenon lamp with its continuous spectrum is good for UV-Visible spectroscopy. The Mercury arc lamp offers very intense lines.

They are powered by an external regulated stabilized adjustable power supply with ½% rms ripple and regulated to 1% change in light level for a 10% change in line voltage. Input required is 115 V or 220-240 V 50-60 Hz. See Catalog for more detailed specifications on this source including a fused silica condensing lens attachment and accessories.

6301	Arc Source – *without* lamp	**$932.00**
6251	75 watt Xenon Lamp for the above	**$ 125.00**
6281	100 watt Mercury Lamp for the above	**$ 97.00**

6301 Xenon or Mercury Arc Lamp Source
rod not included
see page 7

6304 FUSED SILICA CONDENSING LENS ATTACHMENT FOR THE 6301 OR 6312 SOURCE

This mounts on the front of the housing. It contains an f/1.5, 50 mm focal length, 35 mm aperture fused silica lens mounted in a focussing sleeve. The UV grade fused silica will transmit to 185 nm. This will produce a collimated or focussed beam

$166.00

Fused Silica Condensing Lens Attachment for the **6301** or **6312** Source
rod not included
see page 7

6611 RESEARCH LASER

This is a linearly polarized highly stable Helium Neon Laser particularly designed for optical bench and table application. It has a 2 milliwatt output beam at 632.8 nm that is highly stable. The beam is *single mode* and *spatially stable* for alignment applications. The beam is also *power stable* for applications where beam power is measured. The *linear polarization* is an aid to power stability in any application where angled mirrors or beam splitters are used.

$525.00

6611 Research Laser

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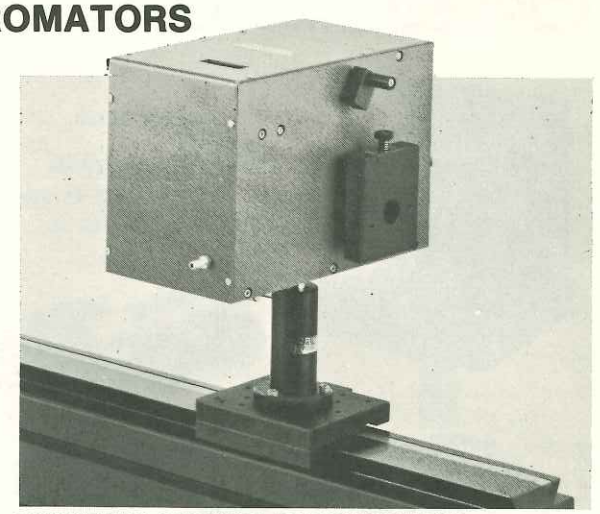
ORIEL ROD MOUNTED MONOCHROMATORS

7240 SERIES GRATING MONOCHROMATOR
This is a high precision high resolution monochromator in that it is compact enough for optical bench rod mounting. With a series of "quick interchangeable gratings" this instrument will operate from 190 nm in the UV through 24 microns in the infrared. Variable slits are adjustable from 0 to 3.2 mm.
See Catalog for details on this instrument plus a list of gratings and a wide variety of accessories. **$540.00**

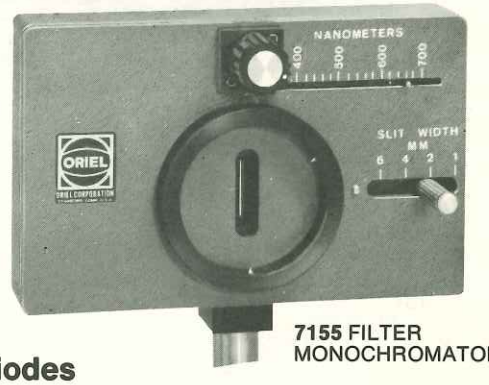


7240 SERIES GRATING MONOCHROMATOR

7241 GRATING MONOCHROMATOR 200-700 nm
This is a 7240 series Monochromator described above with a 1200 line per mm grating usable from 200 to 700 nm. Bandpass is variable from 0.5 to 20 nm. See Section E.
(Less rod) $994.00

7265 MONOCHROMATOR ACCESSORY ADAPTER
This allows the mounting of the detector heads below or the accessories listed in Catalog onto the Grating Monochromator. **$35.00**

7155 FILTER MONOCHROMATOR
This compact instrument consists of a sliding variable interference filter calibrated in wavelength from 400 to 700 nm. The monochromator is capable of a high f/2 collection angle. Four selectable slits (6, 4, 2 and 1 mm) allow for changing bandpasses. The bandpass with a 1 mm slit is a minimum of 2.5% of the peak wavelength (10-18 nm).
$395.00



7155 FILTER
MONOCHROMATOR

ROD MOUNTED PHOTO MULTIPLIERS and Photodiodes

PHOTOMULTIPLIER DETECTION SYSTEM
This system measures very low levels of relative continuous (D.C.) light or radiation from 0.2 to 1.1 micrometers. The excellent linearity, stability and repeatibility make precise long term measurements feasible.
The Photomultiplier Readout provides a variable high voltage to the detector and displays relative radiation level digitally on the front panel. An analog meter is included for system adjustment.
A choice of photomultipliers with various spectral sensitivities is offered. These are mounted in a rugged, rod-mountable, magnetically shielded detector head. A stable resistor network is sealed to eliminate humidity interference.

7070 PHOTOMULTIPLIER READOUT **$1425.00**
less detector head
7060 PHOTOMULTIPLIER DETECTOR HEAD **$295.00**
UV-Visible (200-650 nm)
7062 PHOTOMULTIPLIER DETECTOR HEAD **$645.00**
UV-Extended Visible (200-800 nm)
7066 PHOTOMULTIPLIER DETECTOR HEAD **$550.00**
IR (400 to 1100 nm)

7070 PHOTOMULTIPLIER READOUT

7060 SERIES
PHOTOMULTIPLIER DETECTORS

7050 SERIES
VACUUM PHOTODIODES

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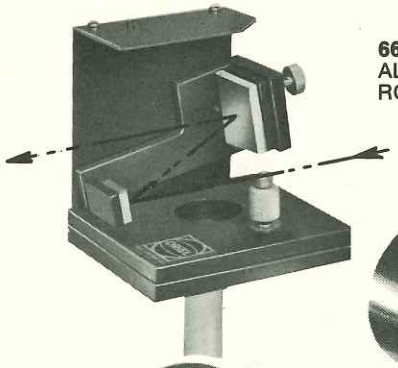
ORIEL ROD MOUNTED LASER ACCESSORIES



6650 LASER BEAM ALIGNER— ROD NOT INCLUDED

6650 LASER BEAM ALIGNER

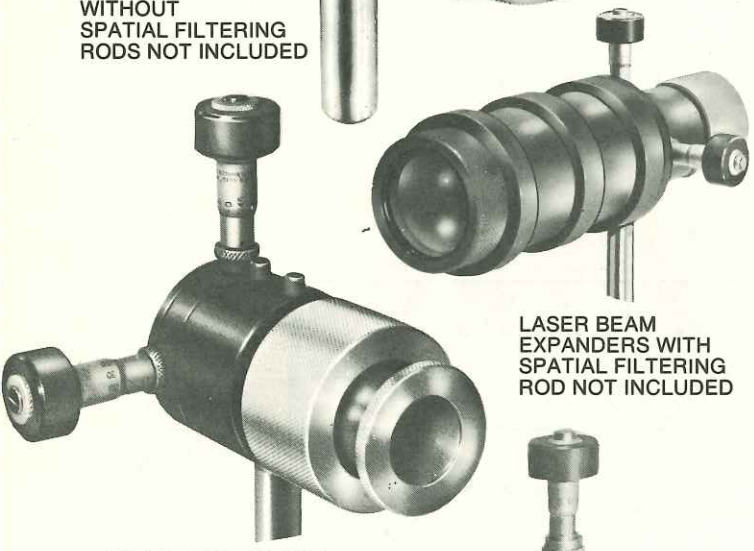
This provides four separate adjustments to align the output laser beam.

LASER BEAM EXPANDERS WITHOUT SPATIAL FILTERING RODS NOT INCLUDED

LASER BEAM EXPANDERS

Without Spatial Filtering

This is a wide line of Galilean telescope laser beam expanders with a variety of beam magnification. They are available with *glass lenses* for the visible and near IR, *fused silica lenses* for the U.V. and *zinc selenide lenses* for the IR.



LASER BEAM EXPANDERS WITH SPATIAL FILTERING ROD NOT INCLUDED

LASER BEAM EXPANDERS

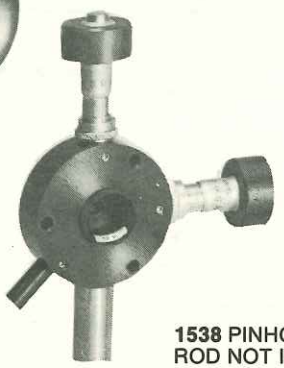
With Spatial Filtering

In these expander/collimators a short focus lens converges the collimated input beam onto a pinhole to provide spatial filtering. The diverging beam is then recollimated in an expanded form by a long focus collimating lens.

1522 SPATIAL FILTER— ROD NOT INCLUDED

SPATIAL FILTERS

These consist of interchangeable short focus microscope objective lenses and small pinholes. The pinhole is adjustable in two axes and the lens in the third axis. This will produce a "clean" diverging output beam from a "dirty" collimated input laser beam.



1538 PINHOLE MOUNT— ROD NOT INCLUDED

1538 ADJUSTABLE PINHOLE MOUNT

This provides smooth micrometer driven adjustment of a pinhole in an independent horizontal and vertical direction. Interchangeable pinholes of various diameters from 1 to 100 micrometers are available.

1572 LENS MICRO TRANSLATOR— ROD NOT INCLUDED

1572 LENS MICROTRANSLATOR

This is a high precision focussing lens mount particularly suited for focussing short focus lenses such as microscope objectives without wobble or side play.

For details on any of these see Oriel general catalog

TO ORDER RODS FOR ANY OF THE ABOVE SEE PAGE 7.

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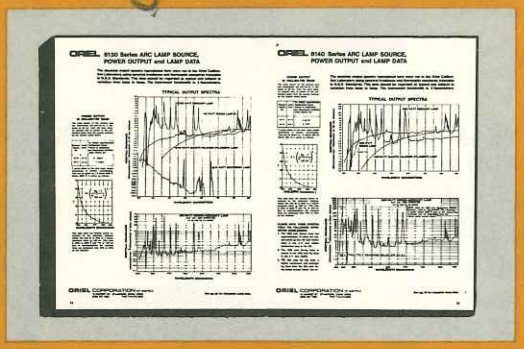
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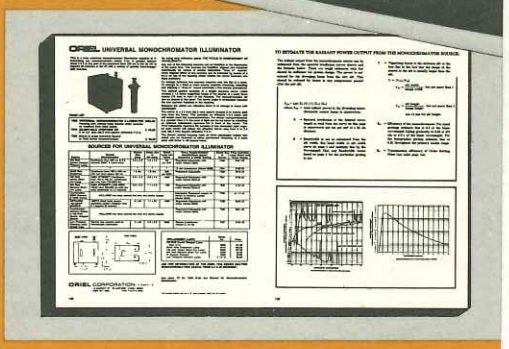

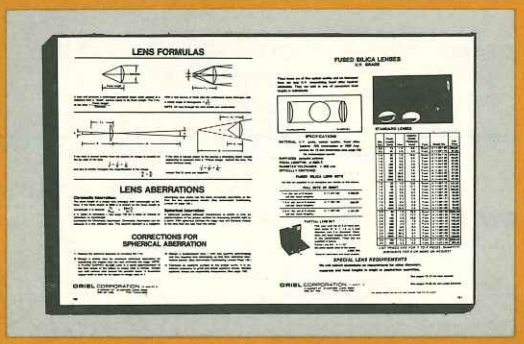

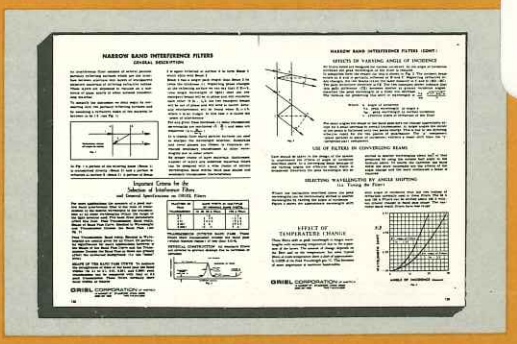

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